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AUTHOR Clark, John L.; And Others
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ABSTRACT

This document sets out a "Framework" to underpin the development and ongoing renewal of the school curriculum in Hong Kong. It also indicates the bases on which the Framework is developed. The Framework forms the foundation of Hong Kong's Target-Oriented Curriculum (TOC) initiative and provides a useful reference for curriculum developers, teacher educators, teachers and all those concerned with the TOC initiative. The book contains five chapters: (1) "Introduction"; (2) "The Contextual and Conceptual Bases of the Framework for Target-Oriented Curriculum Renewal in Hong Kong"; (3) "The Framework of Concepts, Processes, Systems and Representations for Target-Oriented Curriculum Renewal in Hong Kong"; (4) "Managing the TOC Initiative: Putting the Framework into Action"; and (5) "Conclusion." Appendices include two figures: "Pl. ing for the improvement of the quality of learning through the TOC initiative," and "Major Concepts involved in improving the quality of the curriculum." Contains a 67-item bibliography. (EH)

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IMPROVING THE QUALITY OF LEARNING:

A Framework for Target-Oriented Curriculum Renewal in Hong Kong

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IMPROVING THE QUALITY OF LEARNING:

A Framework for Target-Oriented Curriculum Renewal in Hong Kong

John L. Clark

Angela Scarino

John A. Brownell

HongkongBank Language Development Fund
Institute of Language in Education

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CONTRIBUTORS

This *Framework* is the product of the work of the HongkongBank Language Development Fund and Institute of Language in Education TOC Research and Development Project Team. The TOC Research and Development Project was one of eight interrelated projects funded by the HongkongBank Language Development Fund. The work of the eight projects is set out in the Work Report produced by the HongkongBank Foundation (1993).

The TOC Project team would like to thank all the many members of the Education Department, schools and tertiary institutions who worked on committees, advisory bodies and teacher reference groups set up to assist in the development and review of the *Framework*.

This *Framework* is an extensively revised version of the first draft *Framework* produced during 1991 and 1992. It has served and will continue to serve as the foundation of the TOC initiative, though it represents the views of the Project Team rather than official Government policy.

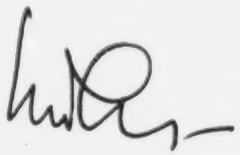
All HongkongBank Language Development Fund and Institute of Language in Education TOC Project Team members have contributed to the development of the *Framework* over the years. Their names and years of involvement are listed below:

Project Leader	Dr John L. CLARK	1990 - 1994
Research Fellows	Ms Angela SCARINO	1991 - 1993
	Dr John A. BROWNELL	1991 - 1992
	Mr William LITTLEWOOD	1991 - 1992
ILE Members of staff	Mrs Lindsay HOWARD	1991 - 1992
	Mr John Anthony MAHON	1992 - 1994
	Mr John HARRIS	1992 - 1994
Research & Development Officers	Ms Emily CHIU Kit-man	1991 - 1993
	Ms Kitty KWAN Kit-man	1991 - 1992
	Ms Lucy PANG LAM Yuen-hing	1991 - 1992
	Ms Dilys SUNG Wai-mui	1991 - 1992
	Ms Annie TONG Siu-yin	1992 - 1994
	Ms Ada WONG AU May-yee	1992 - 1993
	Ms SIU Yuen-lan	1992 - 1993
Secretaries	Ms CHAN Yuen-yee	1991
	Ms Jadsy LAU Lai-si	1991
	Ms Iris FUNG Yuen-kwan	1991 - 1993
	Ms Eve HSING Yen-hua	1991 - 1993
	Ms Clara SIU	1993 - 1994

Foreword

This document sets out a *Framework* to underpin the development and ongoing renewal of the school curriculum in Hong Kong and it indicates the bases on which the *Framework* is developed. The *Framework* forms the foundation of Hong Kong's Target-Oriented Curriculum (TOC) initiative and it provides a useful reference for curriculum developers, teacher educators, teachers and all those concerned with the TOC initiative.

I wish to thank the HongkongBank, the Management Committee of the HongkongBank Language Development Fund and the Research and Development project team in the Institute of Language in Education and to congratulate them on the strength and quality of their work.



Michael Leung
Secretary for Education and Manpower

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1 Introduction

This document presents a *Framework* to underpin the Target-Oriented Curriculum (TOC) renewal initiative in Hong Kong. The document has been written for all those involved in curriculum renewal. The *Framework* was developed in accordance with the policy rationale and recommendations of the Education Commission's Report No. 4 (Education Commission 1990), and has been extensively updated and revised in the light of the experience gained in the period from 1990-1994.

Major efforts are underway to reform the quality of education in many countries throughout the world (UNESCO, 1991). These efforts arise from the strengths and weaknesses of universal, mass education in relation to the marked changes in the social, cultural, demographic, economic, political, scientific and technological context in which we now live and work.

Improvement in the quality of education is a complex, challenging process. Piecemeal approaches do not succeed. Rather, educational change needs to be systemic involving the education system as a whole, such that a change in one aspect of the system necessarily requires change in other aspects if it is to be successful. Clark (1987, xiii) describes the process of curriculum renewal as follows:

> Curriculum renewal can perhaps best be likened to the creation of a never-ending jigsaw puzzle, in which the various pieces are cut and recut to fit together into a whole that is itself evolving to respond to changing insights and values. A change made to the shape of one part of the jigsaw will inevitably affect other parts. All too often, however, attempts have been made to make changes in one part of the curriculum jigsaw, without foreseeing that this implies changes in other parts. Thus curriculum planners who operate from outside the classroom have often introduced changes to school syllabuses or forms of assessment, but have then failed to support teachers to create the resources and to develop the necessary teaching strategies to carry them through in the classroom.

The curriculum renewal process comprises cyclical phases of research, development, trialling, evaluation and review, which are embodied within the *Framework*.

The *Framework* itself is composed of four interrelated elements:

- concepts;
- processes or ways of doing things;
- systems integrating concepts or processes or both;
- representations, i.e. language to identify and connect the concepts, processes and systems; and tables or figures to set them out visually.

Where necessary, new terms have been coined for new concepts, but at all times an earnest endeavour has been made to use familiar terms, where these are appropriate. Wherever new or unfamiliar terms are used, these are defined.

Chapter 2 summarises the contextual and conceptual bases of the *Framework*. Chapter 3 describes the *Framework* for curriculum renewal derived from these bases. Chapter 4 describes what should be done to manage effective curriculum renewal in Hong Kong through using the *Framework* as the foundation for the TOC initiative.

2 The Contextual and Conceptual Bases of the *Framework* for Target-Oriented Curriculum Renewal in Hong Kong

The *Framework* for target-oriented curriculum renewal in Hong Kong is based on a number of contextual and conceptual considerations which were originally set out in Brownell and Scarino (1993). These have been revised in this document, and are as follows:

- the global realities of the 1990s and their impact on education;
- the policy rationale for the TOC initiative as set out in Education Commission Report No. 4 (Education Commission 1990);
- major aspects of the current Hong Kong curriculum as set out in official documents;
- major problems in the Hong Kong education system to which the TOC initiative must respond;
- findings from educational reform experiences in other countries;
- current conceptions of learning, progression and knowledge;
- current conceptions of the curriculum and the curriculum renewal process.

Part One in this chapter sets out the contextual bases, while Part 2 describes the conceptual bases.

2.1 Contextual bases

The global realities of the 1990s and their impact on education

Education systems are inevitably entwined with the social, cultural, intellectual, communicative, economic, political, scientific and technological systems that are at work in the world and in communities within it. In recent years all of these systems have undergone profound and rapid change, and education systems have had to respond to this in order to ensure a future in which the quality of life of each community can be maintained and further developed (Brownell 1992). The most important of these changes are set out below.

There has been a rapid growth in knowledge and information together with advances in technology to store and communicate it. This has meant that school learning must move away from memorisation of detailed information, much of which will soon be out of date, towards a concentration on the essential, and on learning how to search for, interpret, construct and use knowledge, together with the development of a habit for learning and a capacity to approach evolving knowledge with confidence. It also means

that students need to develop literacy, computer literacy and other technological know-how in order to access and make use of the knowledge available.

There has been a growing trend in the nature of employment in advanced economies away from manufacturing towards information-based and service industries requiring thinking, communicative and problem-solving skills. Employment demands now go well beyond the basic knowledge and skills that were required earlier for manufacturing work. In Hong Kong, 69.7% of the labour force is already engaged in various service industries (Hong Kong Government 1994). Education must respond to these new demands.

There is an irreversible move towards a global, transnational economy and towards global interdependence, and an increase in the numbers of those who live or work in environments in which they have to use a variety of languages and be sensitive to different cultures. This means that education systems must place more emphasis on developing international and inter-community languages, and on developing an understanding of other cultures and their value-systems.

There is a move towards greater equity among ethnic groups, sexes, classes and age groups, and towards greater participation in decision-making. This means that schools must ensure that the learning of all students is promoted to the maximum. It means that all students must be enabled to develop their human capabilities (intellectual, communicative, social, emotional, physical, artistic, moral and spiritual) to the full. The education system must act as a "pump" for all, and not as a "filter" that leads to only a small well-educated elite. It must ensure a common pathway of progress for life-long learning for all, with equality of opportunity and of provision.

Since financial investment in education is increasing, there is a widespread demand for greater accountability and transparency. This means that the education system as a whole, and schools within it, need to become more open, more interactive with parents and students, and more accountable for what they do and achieve.

In brief, in order to provide an education suitable to the realities of the modern world, the Hong Kong education system needs to concentrate more on enabling learners to learn how to learn, to think logically and independently, to solve real problems, to be willing to take responsibility, to develop a habit for life-long learning, to cope with the reality of permanent change, to work in harmony with others, and to live and to communicate effectively with those of other cultures and value systems. There is also a need for the education system and the schools to be more open, more explicit in their aims and practices, and more sensitive to the needs and well-being of all their various students. Many of these considerations lay behind the Education Commission's Report No. 4 (Education Commission 1990).

The policy rationale for the TOC initiative: Education Commission Report No. 4

The Education Commission's Report No. 4 provided the initial policy rationale for the work currently being undertaken by the Education Department of Hong Kong on the TOC initiative. The Commission's Report was itself based to some extent on many of the recommendations made in the Education Department's Report of the Working Group set up to review language improvement measures (Education Department 1989).

The Education Commission emphasised that it was necessary **to improve the quality of education in Hong Kong**, now that places had been provided for free compulsory

education for all for 9 years, in order to respond to new global realitites and to ensure the success of the ambitious programme of expansion in upper Secondary and Tertiary education that had been launched.

The Commission recommended:

- providing more active and self-initiated learning through purposeful activity conducive to the all-round development of learners (2.2.5);

- developing a more integrated and less compartmentalized curriculum and less fragmentation within subjects (2.2.11c and 2.3.3);

- drawing upon experience in different areas of the curriculum to solve problems for more effective learning (2.2.11c);

- developing a framework of targets and target-related assessment, and common processes applicable to all subjects, from Primary 1 to Secondary 5. The targets should set a clear direction for learning and assessment. Initial subject-specific development should cover Chinese, English and Mathematics (5.7.3);

- ensuring effective learning by all students towards targets (5.3.11);

- identifying progressive targets for Key Stages: Key Stage One, Primary 1 to 3; Key Stage Two, Primary 4 to 6; Key Stage Three, Secondary 1 to 3; and Key Stage Four, Secondary 4 and 5 (5.6.4);

- replacing existing forms of assessment with assessment based on criterion-referencing principles, in which students are assessed against targets at progressive levels, rather than against one another, so as to enable students to progress at their own best speed and to derive motivation from having their progress made overt (5.3.12);

- basing internal and external assessments on the range of learning in the curriculum so as to cover all broad targets of learning (5.3.10);

- developing assessment which supports the aims of education, ensures effective learning and has a positive effect on teaching and learning (5.3.9);

- developing assessments designed to indicate students' ability to carry out tasks, communicate their thoughts in speech and writing, and solve problems rather than to reproduce isolated bits of knowledge (5.3.9);

- avoiding over-assessment either internally or externally (5.3.11);

- involving teachers in the planning, research and development work relating to the framework (5.7.9).

To enable teachers to use the proposed framework, the Commission stated that it would be necessary to:

- produce new syllabus guidelines to help teachers to create their own appropriate schemes of work leading to the targets;

- elaborate organisational and methodological guidelines to help teachers to cater for students of differing levels of ability and achievement;

- develop assessment guidelines and work towards making all internal assessments target-related and based on criterion-referencing principles;

- set up teams and identify publishers to produce new materials (5.7.6).

The *Framework* for target-oriented curriculum renewal in Hong Kong described in the present document has been designed to meet all these recommendations.

The current Hong Kong curriculum

Respect for the value of education is one of the most fundamental features of education in Hong Kong. The aim of compulsory education and the common core curriculum in Hong Kong is the all-round development of each student to his or her utmost - intellectually, aesthetically, socially, ethically, emotionally, and physically.

In *School Education in Hong Kong: A Statement of Aims* (Education and Manpower Branch 1993), this aim is stated as follows:

> The school education service should develop the potential for every individual child, so that our students become independent-minded and socially-aware adults, equipped with the knowledge, skills and attitudes which help them to lead a full life as individuals and play a positive role in the life of the community.

The Curriculum Development Council's (1993) *Curriculum Guides* constitute a further elaboration of the *Statement of Aims* covering the curriculum from Kindergarten to Sixth Form. They provide guidelines for the intellectual, communicative, social and moral, personal and physical, and aesthetic development of students.

This *Framework* has been designed to operationalise the ideas in the *Statement of Aims* and the *Curriculum Guides*. While the *Framework* is initially being used for curriculum renewal in Chinese, English and Mathematics, **it is essential that the process be extended to all other subjects as early as possible** in order to achieve coherence within the curriculum as a whole.

An analysis of the aims and objectives in the current syllabuses of each of the subjects in the common core curriculum for Hong Kong revealed that there was a common, underlying aspiration that all students should learn to think and to construct and use knowledge. Five common ways of realising this aspiration seemed to be shared across all subjects. These were:

- inquiring;

- conceptualising;

- reasoning;

- problem-solving;

- communicating.

The analysis of subject syllabuses indicated strong encouragement for active and purposeful learning, for an interactive approach to learning, for a shift away from teaching as the transmission of knowledge by the teacher and its absorption and reproduction by students, for the cultivation of moral values and positive attitudes towards learning, and commitment to curriculum renewal as a continuous process.

The results of our interviews and consultations with teachers and teacher educators indicated that, while such ideas may be part of the current and very best practice in Hong Kong and indicative of aspirations, they are as yet by no means typical. Textbooks, schemes of work, teaching and examinations still focus on the memorisation and display of knowledge.

Major problems in the Hong Kong education system

Interviews and discussions with teachers, curriculum developers and teacher educators, visits to schools, and the experience of teacher members of the project team all indicated that there was a wide measure of agreement as to the major problems in the Hong Kong education system that needed to be addressed. These are set out below, together with the range of possible solutions that seemed to be indicated.

It seemed necessary to attempt to overcome fragmentation and overcrowding in the curriculum, through **providing a curriculum framework which would highlight connections across subjects and focus on the essential rather than on atomistic detail**.

Classroom practice indicated that although the aims of education had been set out, they were not well known to teachers and were not being operationalised coherently and consistently throughout the curriculum. **A more coherent system of learning targets that would permeate the curriculum as a whole and all subjects within it was required**.

The over-emphasis on rote-memorisation and on the linear mastery of decontextualised skills would have to give way to **a more active and purposeful construction and use of knowledge through engaging students in relevant, contextualised learning tasks**.

The lack of awareness of the role of language in learning would have to be addressed by **highlighting the interdependence between language and learning, and between knowledge and ways of representing and communicating it in speech and writing.**

The lack of explicit information on what learning progress looks like, and on what students should be able to do as they make progress, would have to be rectified by attempting to **describe stages or bands of ever-improving performance**.

The view, apparently shared by many, that students are born with a fixed amount of intelligence and aptitude for learning, and that this will remain constant and can be tapped in academic aptitude tests, would have to be challenged by **highlighting the fact that all students can learn well, given appropriate learning experiences, and that all students have ever-improving capabilities, though they learn at varying speeds and have different strengths and weaknesses**. The lack of differentiation in teaching, learning and assessment, and the paucity of resources for individual and group learning would have to be addressed by **creating resource**

centres and a bank of graded learning resources, and devising practical teaching and learning strategies that would promote individual learning.

Too much school assessment in Hong involves gap-filling and multiple-choice questions and is designed to enable a class to be put in a clear rank order. Given the fact that all students now have access to 9 years of compulsory and free education, and that the vast majority continue to the end of Secondary 5, there seems little reason for school assessment to be designed mainly if not entirely for rank-ordering purposes. The TOC initiative would need to **devise forms of assessment designed to measure students' learning against criteria embodied in standards, in order to measure what they were able to do and how well they could do it, and to highlight their strengths and weaknesses in order to inform future teaching and learning.**

The lack of a whole-school approach to many aspects of teaching, learning and assessment, and the lack of a tradition in many schools of school-based staff development and curriculum development, implied the need for **a major change in the way the curriculum renewal process was conceptualised, with a strong focus on teacher development and involvement, and on school-based and whole-school approaches to both curriculum development and professional development.**

The lack of coordination across sectors of education, and the apparent resistance to any fundamental rethinking of the curriculum to respond to changing realities, in comparison with the ferment of activity being carried out in Europe, the USA, Canada, Australia, New Zealand, Singapore and Japan seemed to indicate that the structures for curriculum renewal in Hong Kong were ineffective. While this problem had been addressed to some extent by the creation of a Curriculum Development Institute, it would be important **to ensure that a curriculum renewal process was set in motion that involved schools and teachers, and that was underpinned by a *Framework* of common concepts and processes to ensure coherence in what was being done.**

These were major problems to which the TOC initiative would have to respond in the ways indicated.

Findings from educational reform experiences in other countries

An analysis was made of a number of international reports on education, including Lowe (1990) and UNESCO (1991). These seemed to indicate a number of common patterns in educational reform around the world:

- a realisation that improving teacher capability was at the heart of curriculum renewal;
- a move towards the integration of content in the curriculum;
- a move towards more learner-centred education and more differentiation in teaching and resources;
- a concern that education should lead to better and more independent thinking and creativity, rather than focusing on recall;
- increased emphasis on values education, particularly in Asia;

- a realisation that assessment should be an integral part of the curriculum and that it should assess what is important, rather than focusing on the atomistic objectives of the curriculum that can be easily assessed;

- the need for more value to be given to school-based assessment.

An examination of the frameworks and models for educational reform in various countries, including in particular the United Kingdom (England and Wales, Scotland and Northern Ireland, each of which had different models), California. Australia, Canada, New Zealand, Japan and Singapore was made with the specific objective of extracting the following:

- the context giving rise to educational change;

- the fundamental concepts that were set out for education and learning;

- the way in which the curriculum was conceptualised;

- assessment and reporting;

- the curriculum renewal processes adopted.

A detailed analysis of the United Kingdom and Australian documents is presented in HongkongBank Language Development Fund / Institute of Language in Education (1991).

Experience in these and other countries revealed the need to have a cross-curricular perspective from the outset, rather than to start with separate subject-specific developments. Many schemes had failed to do this (e.g. England and Wales), and were having to make substantial revisions to what was originally proposed by each subject group in order to achieve coherence and practicality across the curriculum.

Experience highlighted the need to keep the number of targets to a practicable size and to ensure that they embodied what was essential in learning. In England and Wales there were at one time 260 targets, called "statements of attainment", to be taught and assessed for 7 year olds in the core subjects of English, Mathematics and Science. While teachers had on the whole coped with teaching towards these, the assessment and recording of progress on so many targets had proved impracticable. In the revised document for one of the three subjects, namely English, the statements of attainment were therefore revised and reduced from 159 to 99, in order to focus on the more essential concerns (Department for Education 1993). These will almost certainly have to be further reduced. The TOC initiative should have no more than 20 to 30 essential learning targets per subject for any Key Stage, if the *Framework* is followed.

It has been shown that assessment needs to be both aligned with the rest of the curriculum and practicable. In England and Wales, the early standardised assessment tasks, though broad and integrative in nature and therefore well aligned with the rest of the curriculum, proved unmanageable, not because of their format, but because teachers had to assess large classes of students against a huge number of statements of attainment. Politicians have now gone to the opposite extreme, and against professional advice have instructed those responsible for assessment within the National Curriculum to reintroduce short paper and pencil tests which manifestly fail to capture many of the important aspects of learning. The TOC initiative will avoid both of these extremes, if the *Framework* is followed.

It is also clear from the reform experiences elsewhere that there can be great resistance to change particularly among academics and teachers. This resistance has to be sensitively handled and overcome as far as possible through maximum academic and teacher involvement in the reform process, through the provision of adequate resources and time, and through the careful nurturing of an effective professional dialogue. There is every hope that if the TOC initiative follows this *Framework* it will gain support from both academics and teachers, since it embodies the best that is currently known about learning, progression and knowledge, and about the curriculum and the curriculum renewal process, as well as serving as a direct response to the political, social and academic requirements of the time and to major problems in the Hong Kong education system. It calls for maximum involvement of academics and teachers in the renewal process.

There is a need to take into consideration the stage of development of an educational system as whole and of professional development and curriculum development within it, so that a curriculum renewal initiative can be planned to take the system and those within it from where they are towards the next stage. In Beeby's (1973) terms, Hong Kong has reached the "transitional" stage. It is moving from the stage of "formalism", in which teachers are trained but are not all graduates, and in which schools use approved textbooks and teachers follow rigid schemes of work based on them, towards the stage of "meaning", where teachers are all graduates and fully qualified, and in which schools and teachers are engaged in curriculum renewal and responsible for their own curriculum.

Experience elsewhere indicates that careful formulation of ideas, wide consultation, effective trialling, evaluation and review of original proposals and resources are required, before launching innovations widely. This demands a great deal of time. It seems necessary on the basis of experience gained in other countries to envisage at least a 15 year time-scale for the introduction of a major educational initiative such as TOC, which is to cover learning from Primary 1 to Secondary 5.

It is also clear from the experiences in many countries that it is necessary to plan educational reform in a coherent and seamless manner from Kindergarten through to University level as a whole, rather than in discrete, separate phases. The failure to plan for a proper pathway, leading from the National Curriculum in England and Wales to the GCSE and A Level structures, has predictably caused major problems. There is a grave danger in Hong Kong that the retention of unrevised norm-referenced HKCEE, and A level and AS level examinations, at Secondary 5 and beyond, will mean that there will be a substantial dislocation between the sort of curriculum and assessment advocated in the TOC initiative and what will have to be taught and assessed in upper Secondary. It is hoped that this situation can be rectified before it is too late, as it is certain to lead to confusion and dislocation.

It would appear that the New Zealand Government is the only one so far to have had the foresight to create one unified national framework for education. They have embraced a systemic, coherent view of the education process and have created a "seamless education system", set out in *Education for the 21st Century* (Ministry of Education of New Zealand 1994). This establishes a common pathway of qualifications to which the whole range of school, tertiary and vocational courses can be tied. This both bridges the traditional academic-vocational gap and attempts to ensure equity and bring about parity of esteem for all forms of education.

In Hong Kong, in order to provide an education system in tune with the requirements of the 21st century, we need to create a similar seamless life-long education and qualifications pathway through Kindergarten, Primary, Secondary, Tertiary, Vocational and adult education, if we are to ensure equity and avoid the problems of dislocation seen elsewhere. This *Framework* provides the foundation on which to build this.

Having summarised a number of the more important contextual bases of the *Framework* proposed in this document, we turn in Part Two to the conceptual origins.

2.2 Conceptual bases

Current conceptions of learning

All members of a community have a conception of what is meant by learning, which consciously or unconsciously influences their actions as learners and parents. As with all conceptions, the conceptions of learning may range from notions which have little to do with reality, through partial pictures which capture some aspects of learning, towards more complete conceptions which are grounded on empirical evidence of how learning actually takes place.

Many current educational practices in Hong Kong and elsewhere can be said to be based on the partial conception of learning set out by behaviourist psychologists. Their learning theory was based on studies of animal behaviour from which they generalised their findings to human learning. In so doing they set aside the question as to whether the human brain with its capacity for connected thought might invalidate this.

The behaviourist conception of learning was a quantitative, atomistic and linear one. The curriculum continued to be divided into separate subjects. Subjects were further divided into content areas and skill areas. Content areas were divided into discrete facts, and skill areas into sub-skills. Learning meant mastering and accumulating the facts and practising the sub-skills, one after another, until they became fixed or automatic. Thus progress in learning meant learning more and more facts and mastering more and more skills.

It is now generally accepted, on the basis of evidence obtained from studies of human learning, that progress in learning is qualitative rather than simply quantitative, holistic rather than atomistic, and cyclical rather than linear. **Learning** is now conceptualised as an active, holistic, purposeful process of constructing, using and reconstructing knowledge (Vygotsky 1978, Segal et al 1985, Resnick 1987). Learning means developing an ever-improving capability to make sense of the world and to act upon it.

Capability

All human beings have a capability for learning. We are born with genetic predispositions to learn, whose development is brought about through the learning experiences we are exposed to and engage in. We do not all learn at the same speed or to the same degree across areas of learning, but we all have ever-improvable capabilities in all the domains of learning. Children are not born with a fixed level of overall ability which determines in advance what they can and cannot learn. The results of IQ and academic aptitude tests should therefore not be used as if they were able to reveal such a fixed ability.

It is important in all education systems concerned with equity and the reality of ever-improvable human capability not to prejudge at any age what children can and cannot do in the future. Prior expectations of low achievement are nearly always self-fulfilling. Rather, it is important to ensure that all children have access to quality learning experiences tailored to their needs throughout their schooling, in order that they may each make the most of their capabilities in their different ways.

The purposeful constructivist view of learning, whose target is to develop ever-improving capabilities in a wide range of knowledge areas, can be usefully summarised in a set of overlapping principles:

Principles of learning

- Learning involves the active construction of knowledge through processes of inquiry, thinking, problem-solving, creating, performing and communicating;

- Learning is purposeful. It derives from the desire to make sense of the world and act upon it;

- Learning is based on previous knowledge (Putnam, Lampert and Peterson 1990). Students do not come to learning as a "tabula rasa". They enter education with the knowledge that they have developed in the home and other familiar environments, which shapes their understanding of the world. Existing knowledge is the basis on which further learning is built;

- Learning involves accommodating new insights within the existing framework of knowledge. This can lead to extending it or to having to reorganise it;

- Learning is interactive. Studies have shown that learning is more effective when learners are engaged in interaction with the teacher, with other students and with resources. Through this they inquire, explore, formulate, explain and justify their thinking, in order to find out what they know, and in order to expand that knowledge when it is challenged by others (Barnes 1976, Wells 1981). Talk and writing are means for shaping and strengthening thinking. Listening and reading are means for interpreting the thought of others, and through this, for expanding the framework of knowledge;

- Learning results from having implicit conceptions and assumptions challenged. This occurs where learners make their implicit knowledge explicit. In good teaching situations implicit knowledge will be drawn out, made explicit and challenged through supportive classroom interaction (Vygotsky 1934; Inhelder and Piaget 1980; Gelman and Brown 1986; Confrey 1990; Wells 1994);

- Learning involves becoming aware of the structures and processes underlying thinking, knowledge and learning. It involves developing ever more conscious awareness about thought, knowledge and learning, through reflection;

- Learning occurs in a context of use. Context relates to the situational and interactional circumstances in which knowledge is constructed and used;

- Learning is most effective when the conceptual content is thematically interrelated. As Miller (1956) points out, we can take in only about seven isolated items at a time, and then only for brief recall. However, if the items are connected in some way, we can not only take in more but we can process it much more deeply;

- Learning is holistic. It is more effective when tasks are undertaken as a whole, rather than when they are broken down into bits (Welford 1968), thus learning is best effected when it is task-centred It may be important, however, to focus on particular bits of knowledge and part-skills, as required, in the context of a task as a whole;

- Learning is a cyclical process and involves students extending, elaborating, and reorganising their knowledge frameworks. It is not linear (Glaser, 1992; Romberg, 1992). Learning is not best brought about by learning facts one after the other, or mastering skills one after the other. Rather, it involves engaging in tasks in which concepts and processes are taken in. They are strengthened or reorganised when they are revisited in new contexts. Gradually they are built into ever-stronger knowledge structures;

- Learning depends upon the learners' attitude and whole approach to learning. They may have a surface, achieving or deep approach to school work, based on a lesser or greater determination to find relevance and meaning in what they are doing (Biggs 1991). Learners may get by with a surface approach, do enough to pass examinations with an achieving approach, but quality learning depends upon developing a deep approach.

The role of language in learning: Language across the curriculum

It is necessary to highlight the **role of language in learning**, particularly in the Hong Kong context where it is a major problem area. Knowledge is developed through language and is expressed in language. Listening and reading are means to process concepts and to extend our knowledge. Talk and writing are means for developing, shaping and reshaping our thinking and knowledge. When we talk we explore our own ideas, and through interaction with others bring greater coherence to them, or when challenged reorganise them. In literate societies, writing is an essential means for exploring and shaping our thinking on paper, in circumstances which permit the drafting and redrafting of what has initially come to mind (Harris 1993: 10-12). Without a capability to interpret and express oneself in the language that is being used as the medium of instruction, learning is ineffective, since it becomes impossible for students to construct and reconstruct their own knowledge. They become dependent upon the scraps of unconnected knowledge that can be internalised through rote-memorisation.

The Education Commission in Report No. 4 (1990, Chapter 6) addressed the issue of the medium of instruction in schools. It recommended that only those students who are likely to be able to learn effectively in English, and who wish to put in the necessary additional effort, should do so. The normal practice at primary and secondary school level should be to learn through the medium of the mother tongue (Cantonese) and its associated written language (Standard Written Chinese). It is important for schools and parents to understand the issues and choose an appropriate medium(s) of instruction on sound educational grounds. It is crucial that schools develop **language across the curriculum** practices to support the effective use of language for learning (Johnson et al 1993). In English-medium classes, a repacing of subject learning programmes, and a linguistically integrated set of learning materials across the curriculum, will need to be adopted in the early years of the secondary school, in order to establish English as an effective medium of teaching and learning. It is important in both English-medium and Chinese-medium classes to develop an interactive classroom in which students inquire, think, construct, use and reconstruct knowledge, and communicate it in speech and writing.

Purpose, context, process and product

Learning, then, is a purposeful, contextualised and language-dependent activity. It involves engaging in processes of inquiry and problem-solving, creating and judging, interacting and reflecting, and results in the development of ever-improving knowledge and capability.

The **purposes** which learning serves are manifold. The art of good teaching for learning is to construct tasks in such a way that students find a purpose for engaging in them with some depth of mental involvement.

The **contexts** in which learning is situated may be real, simulated or imaginary. Context embraces situations and the people and interactions that form part of them.

Process refers to the modes of inquiry, thinking, problem-solving, creating, performing, judging and communicating that we engage in in order to learn, and all the strategies and skills involved in these. When learning, we draw on our existing framework of knowledge, with its interrelated conceptual, process, metacognitive and representational components, and we strengthen, extend or reorganise the knowledge structures within the framework in the light of the learning experience and the insights that this may bring.

Product refers both to the product of learning, i.e. a better framework of knowledge, and to the more visible products that are the result of using knowledge, e.g. notes, calculations, reports, a design, a performance or an artistic creation.

Purpose, context, process and product provide useful parameters through which to conceptualise and describe learning.

Current conceptions of progression

Progression in learning involves building up increasingly more elaborate and qualitatively better knowledge structures over time. Flavell (1983: 277) suggests that it is difficult to pin-point clear-cut stages in this process. It is easier to support the existence of broad generic **developmental trends**.

There is general agreement that learners move from:

- working with entities in the immediate environment towards working more abstractly;
- identifying and labelling particular entities towards creating more elaborate conceptual classifications and descriptive and explanatory systems;
- context-embedded and action-related talk, through initial literacy, towards the use of the more specialised languages of different subjects and pursuits;
- initial numeracy and spatial orientation towards more complex quantitative and spatial problem-solving;
- experimenting through manipulating with familiar objects, towards testing theories and validating findings;

- intuitive reasoning towards more logical argument based on evidence or principles.

These developmental trends are generic in nature. They can be applied to any particular subject, and in the process become more specific and refined.

It is, however, important to bear in mind that tasks for young learners can be so constructed that they are brought to a level far beyond what might be expected (Donaldson 1978; Bruner 1985). When challenged within what Vygotsky (1978) has termed their "proximal zone of development" - i.e. at a level beyond their current capability, but which they reach with support from others - children can often achieve much more than is traditionally expected of them, given an appropriate level of support. Good teaching is a matter of discovering at what level to challenge a learner, what level of support to provide, and when to reduce or remove the support.

Bands of performance

However difficult it may prove to be, it seems essential to set out a broad map of typical progress in learning, as captured in performance, through describing stages or **bands of performance**, which draw on the developmental trends set out above and describe what students can do, and how and how well they typically do this. The **bands of performance** should draw on current conceptions of progression and cover essential areas of learning. They should be established in such a way that they form a seamless pathway of progress. Ideally, they should cover learning at all stages from Kindergarten to tertiary level across academic and vocational sectors of education.

Current conceptions of knowledge

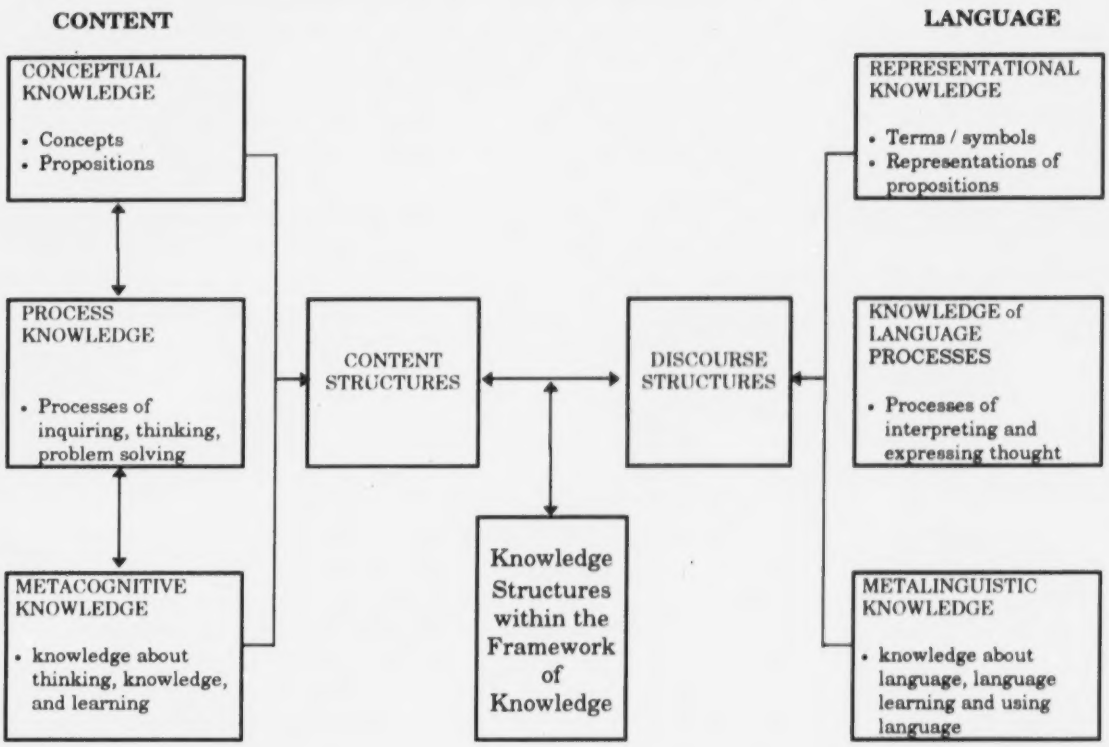
The product of learning is ever-improving capability. Capability is dependent on the development of knowledge structures. Simply put, an individual's **knowledge structures** can be said to comprise four major strands:

- conceptual knowledge: knowledge and use of concepts (knowing that ....);
- process knowledge: knowledge and use of processes (knowing how to ....);
- representational knowledge: knowledge and use of verbal, visual and other symbolic forms to represent knowledge and share it through communication;
- metacognitive knowledge: knowledge and awareness about thinking, learning, language and knowledge itself.

These four strands are combined together through learning experiences to form knowledge structures in and across the various subjects in the curriculum. An individual's framework of knowledge is made up of many interconnecting knowledge structures. Through experience, learners are constantly adding to, connecting and reorganising their existing knowledge structures which shape the way they think, what they do, and how and how well they do it.

As has been highlighted earlier, language plays a crucial role in the development of knowledge. Figure 1 overleaf indicates the way in which curriculum "content" and language are interrelated through content and discourse structures, both of which are intertwined in knowledge structures within an individual's broad framework of knowledge (Clark and Scarino 1993).

Figure 1: The relationship between content and language



It is through the curriculum that we effect learning and progression, and it is through the learning experiences to which the curriculum gives rise that learners develop and use knowledge structures. It is to the curriculum that we now turn.

Current conceptions of the curriculum

The curriculum can be conceptualised as having four integrated levels:

- the curriculum as a whole;
- curriculum areas;
- subjects;
- dimensions within subjects.

The **curriculum as a whole** integrates curriculum areas and the subjects and dimensions within them.

Curriculum areas in the Hong Kong curriculum for secondary schools include:

- Mathematics and Sciences (e.g. science, chemistry, physics, biology, computer studies, mathematics);
- Humanities (e.g. social studies, history, geography, economics and public affairs);

- Languages (e.g. mother tongue and associated written language, English and Putonghua);

- Cultural, Practical and Technical Subjects (e.g. physical education, art and design, design and technology, home economics and music);

- Personal and Social Education (e.g. civic, environmental, ethical, religious, moral and sex education).

Within each curriculum area are **subjects**. Following King and Brownell (1966: 95), we might describe each **subject** as having:

- a community of persons knit together by a common discourse and intellectual commitment to construct and use knowledge for a range of shared purposes;

- a domain of ideas, activities and representations;

- a tradition with a history;

- a mode of inquiry and a way of constructing knowledge;

- an ever-evolving structure of principles, concepts and related processes;

- a specialized language, or symbol system;

- a heritage of literature and other artifacts;

- characteristic values, dispositions, and ethical concerns which provide its emotional dynamism.

Dimensions within subjects constitute a pragmatic curriculum construct designed to facilitate the organisation of learning and teaching within each subject, while at the same time respecting the holistic nature of the subject. Just as subjects can be seen as holistic 'dimensions' of curriculum areas, and curriculum areas as holistic `dimensions' of the curriculum as a whole, the dimensions of a subject represent holistic entities within a subject. In the National Curriculum Council's (1993) *Teaching Science at Key Stages 1 and 2,* there are four dimensions. They are: scientific investigation, life and living processes, materials and their properties, and physical processes. Each of these is subsequently elaborated as a set of strands. For 'scientific investigations' the strands are: ask questions, predict, hypothesize; observe, measure and manipulate variables; interpret their results and evaluate scientific evidence. In *Mathematics in the National Curriculum* (Department of Education and Science 1990), there are five dimensions: They are: using and applying mathematics, number, algebra, shape and space, and handling data. The strands for 'using and applying mathematics' include: applications, mathematical communication, reasoning, logic and proof. These examples demonstrate the way in which various concepts, processes, representations and aspects of metacognitive awareness in each subject may be integrated to create a matrix of dimensions and strands which provide a pedagogical structure for the subject as a whole.

The planned curriculum and curriculum reality

The curriculum can be said to have three aspects, which need to be brought into ever-closer alignment. The planned curriculum covers two of these aspects, namely "intentions" and "resources" or "tools", and curriculum "reality" constitutes the third. Governments conceptualise the curriculum in the form of intentions and ask that they be set out as educational aims and curriculum guides. Curriculum developers, teachers and examiners produce resources or tools such as syllabuses, learning materials and examinations to operationalise the intentions. Reality, however, is forged in the classroom through the interaction between students and teachers, and between students and learning materials (Stenhouse 1975).

These three aspects of the curriculum are set out in the table below:

Table 1: Aspects of the curriculum

Intention	Resources	Reality
e.g. • Statements of aims • Curriculum Guides	e.g. • Learning Programmes • Schemes of Work • Learning Materials • Assessment Tasks • Bands of Performance • Examinations	e.g. • The interaction between students and teachers, and between students and resources (process) • The learning that results from this interaction (product)

There is frequently a mismatch between intention and reality, and there is often a mismatch between the resources provided to implement the intentions and the intentions themselves. Not all learning resources embody curriculum intentions very well. Even where intentions and resources are in harmony, teachers may not use them in the intended way, and the resulting reality may have little to do with what was aimed at. Any educational initiative must seek to align intentions, resources and reality. The effectiveness of any initiative will be judged in terms of the extent to which the outcome of curriculum reality, i.e. student learning, has improved in the desired direction.

Change both to the planned curriculum and to curriculum reality is brought about through the developmental process referred to in this document as curriculum renewal, since this term captures the fact that any development or curriculum improvement has to be built on the roots of the existing planned curriculum and teaching practices, leading at times to the extensive reorganisation of them both, just as any learning is built on existing knowledge structures and may lead to substantial reorganisation of them.

Current conceptions of the curriculum renewal process

Learning is at the heart of curriculum renewal, and the central purpose of any curriculum renewal initiative must be to improve the quality of learning in some way.

Improving the quality of learning

Improving the quality of learning depends crucially upon bringing improvements through **research, development, trialling, evaluation and review** in four interrelated and overlapping dimensions:

- the capability of teachers and of other contributors to the education process, e.g. teacher educators, curriculum developers, examiners, publishers of learning materials, principals of schools, educational policy-makers, administrators and others. This is best done through effective professional development and through the establishment of an inclusive curriculum renewal process;

- the quality of the curriculum;

- the quality of the learning environment both in and out of school;

- public understanding of learning.

Improving the capability of teachers and of other contributors to the education process through effective professional development and the establishment of an inclusive curriculum renewal process

In order to **improve the capability of teachers and of other contributors to the education process**, there is a need to provide adequate resources and structures for the **effective lifelong professional development of all those engaged in the education process**. Professional development through pre-service education, in-service education and support, and through in-school staff development is the key to curriculum renewal, since the level of understanding and of capability in the use of educational knowledge among teachers and others sets the limit to what can be achieved (Cheng 1994). It is essential for policy-makers, curriculum developers, examiners, teachers and others to engage in professional development experiences in order to keep up to date and to improve their knowledge and skills to carry out curriculum renewal.

Much has been written about the locus of the impetus for curriculum renewal and about where the bulk of the work is situated - whether it is "top-down" in nature or "bottom-up".

The process of curriculum renewal is said to be top-down where a policy is determined by politicians, turned into curriculum plans and resources by small groups of educational experts working outside the classroom, with little involvement of schools or teachers, and then implemented. In contrast to this, the process of curriculum renewal is said to be bottom-up where it is the school or classroom teacher who launches and carries out the initiative.

The weaknesses associated with strict top-down ventures are well-known. Since they lead to packages produced from outside the school, teachers and schools do not feel any sense of ownership of them and often resist their implementation. When they do have to implement them, they tend to pay lip-service to them, adapting what they are asked to do to their normal practices, discarding the new and challenging aspects (Brown, McIntyre et al 1976). Where this happens, little change is brought about.

The strength of bottom-up curriculum renewal involving teachers and ideally whole schools lies in the fact that teachers are closest to the reality of their own classroom.

Their involvement in bottom-up work ensures a sense of ownership and their own professional development. It is clear, however, that such self-initiated bottom-up curriculum renewal is limited to those few schools and teachers that engage in it, and does not address the need for general renewal across all schools, to align the education system as a whole with new requirements.

The conclusion to be drawn is that effective general curriculum renewal across all schools can neither be brought about from the top-down by policy-makers hiring experts to produce ready-made packages to be implemented in schools, without the involvement, expertise and sense of ownership of teachers and other contributors to the curriculum renewal process; nor can it be achieved from the bottom-up by individual schools and teachers in any acceptable time-frame, without a shared sense of direction and common action across all schools to lead there. Effective general curriculum renewal, such as has been called for in Hong Kong, can best be brought about by **developing an inclusive curriculum renewal process**, based on mutual, shared responsibilities among all contributors, with **teacher involvement** and **whole school involvement** in every phase of the process.

An inclusive curriculum renewal process needs to include not only those immediately engaged in the education process, but also clients of the process. It needs to develop **effective communication and consultation with parents and employers** to ensure that they understand and can contribute to what is being done.

Various structures would seem inimical to this sense of inclusion. A hierarchical structure, in which schools and teachers are obliged to carry out instructions, would not engender a sense of shared ownership. A pseudo-democratic consultative structure, in which all decisions are made by an Education Department, and where those with whom consultation takes place are chosen for their likely agreement with those in authority, will not work well either. A structure in which each school is empowered to carry out its own renewal in isolation from others would also be unlikely to be inclusive, since while it might lead to much enthusiasm and effort in some schools, it might lead to little or nothing in others.

It is an inclusive structure, together with a strong sense of direction, based on a network of interactive contributors fulfilling the various tasks that need to be carried out, that is needed (Adelman and Alexander 1982, Clark 1987 : 136). This requires considerable leadership skills among those responsible for the process. In large-scale projects it often helps to have one experienced enthusiast charged with the overall task of managing and acting as facilitator, supported by a genuinely representative Steering Committee and by a stable core of committed professionals. Ideally the overall manager/facilitator should remain the same from start to finish of an initiative in order to ensure continuity and consistency of direction.

Some of the roles played by contributors within an inclusive curriculum renewal process are set out in Table 2 overleaf.

Improving the quality of the curriculum

An ongoing process should be established for **improving the quality of the curriculum** and of all the resources on which it depends. As stated above, the quality of what can be achieved in this is wholly dependent upon the professional development of teachers, teacher educators, curriculum developers, curriculum managers such as principals of schools, examiners, materials writers and others, whose responsibility it is to cooperate in the renewal of the planned curriculum and to bring it alive in the school and in the classroom.

Table 2: Contributors within an inclusive curriculum renewal process

Contributor	Some Contributions
Students	• participating actively in their learning and assessment • understanding targets and recognizing their own strengths and weaknesses • assuming greater responsibility for their own learning
Teachers	• renewing current Schemes of Work • participating in-service education activity • participating in materials development and exchange with other teachers • exploring new approaches to teaching and classroom management • contributing to Education Department development initiatives
Subject panel chairs (primary and secondary)	• providing leadership to teachers and harnessing their energy and expertise in renewing schemes of work • ensuring that curriculum renewal in their own subject is in line with renewal across the whole curriculum
Principals	• providing leadership in a whole school approach to curriculum renewal • ensuring that a whole school curriculum policy and plan is formulated and explicitly set out • supporting the use of Learning Programmes and the efforts of panel chairs and teachers to renew their Schemes of Work • informing parents about education and learning, and about curriculum changes, and involving them as far as possible
Parents	• making efforts to understand what schools are trying to do • supporting their children in their learning and providing love and enriching learning experiences • maintaining positive expectations of their children based on an understanding of their strengths and weaknesses
Professional associations	• supporting the professional development of teachers, and campaigning for better resources and conditions and a better learning environment, leading to better learning and teaching
Education Department	• developing a long-term action plan for system-wide ongoing renewal of the curriculum as a whole • developing learning and assessment resources with teachers • developing evaluation processes for quality assurance • resourcing school-based teacher education programmes • establishing effective communication structures • providing guidelines to publishers and to the Examinations Authority
Tertiary institutions and Teacher educators	• organising in-service education programmes, and school and teacher support • contributing hands-on expertise in the work of curriculum renewal • ensuring that pre-service education courses reflect current developments • undertaking research to underpin current and future curriculum renewal
Assessment agencies	• developing a seamless framework of qualifications for life-long learning • renewing assessment syllabuses and forms of assessment in the light of ongoing developments
Publishers and equipment providers	• creating banks of new graded learning resources to embody the best that is known about learning
Education and Manpower Branch	• creating the climate, and providing the rationale and the direction for change • providing the financial and human resources required for effective curriculum renewal
Employer organisations	• providing information on their needs • understanding the need for change and supporting it

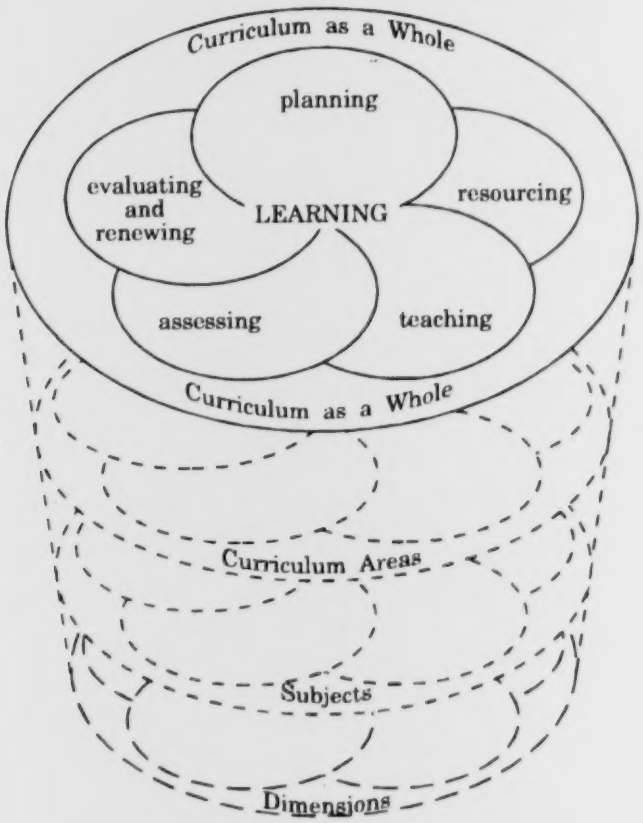
The process of **improving the quality of the curriculum** can be depicted as an integrative system of activities concerned with improving student learning experiences. The process involves research, development, trialling, evaluation and review in each of the following activities:

- planning for learning;
- resourcing for learning;

- teaching for learning;
- assessing for learning;
- evaluating and further renewing for ever-better learning.

These activities and the four curriculum levels at which they can be said to operate are depicted in Figure 2.

Figure 2: Activities involved in the curriculum improvement process at the four levels of the curriculum



Improving the quality of the learning environment

It is important to keep **improving the quality of the learning environment both in and out of school**. In school, it is important to ensure that the learning environment is maximally conducive to effective learning. All schools should be provided with **a multi-media resource centre and with a wide range of resources**. There is a need to work towards more **effective and pleasant working facilities and spaces for both teachers and students**. It is essential, for example, to ensure that all schools have a sufficient number of classrooms that are well laid out, well resourced, and well equipped with state-of-the-art technology, and that staff facilities and working spaces are conducive to good morale and professional commitment. It is important to **reduce class sizes, and to increase the teacher-student ratio**. It is above all else important to have **good staffing,** and to attract high quality entrants into the teaching profession.

Out of school, **parents** and **the media** should be encouraged and helped **to provide enriching learning experiences and a wide range of resources for children's learning**.

Improving public understanding of learning

Where parents have a conception of learning that is in line with the best that we know about it, they are more likely to be able to support their children effectively in their development. Where parents are unaware of what is conducive to effective learning, they may be unable in any deliberate way to maximise the learning potential of their children. **There is a need to develop a communication plan leading to an education and information programme to communicate with parents and the general public about learning,** so that they understand the importance of quality parental interaction with children and of enriching learning experiences. A large proportion of overall learning and of attitudes to learning are developed in the home and in the community, and it is both wrong and unrealistic to look to schools to improve education levels without the involvement and support of parents and the general public. This means that **schools should view parents as partners in the overall education process**, and seek to be open and to **involve them through parent-teacher association work** as far as they can.

Attempts to improve teacher capability, the planned curriculum, the learning environment, and public understanding of learning, should all be interrelated. It is necessary to ensure that all areas are acted upon in a coherent manner. It will be of little use to have designed a sound curriculum and resources which teachers do not know how to use. Equally, it will make little sense to have provided the means for the ongoing professional development of the teaching force, if they are obliged to work with inadequate curriculum plans, poor materials, and examinations which distort the major purposes of learning. It will be counterproductive to provide an inadequate and uncomfortable teaching and learning environment in school, or to let teaching become a low status profession, since this will inevitably fail to attract quality entrants and lead to a rapid turn-over of staff. It is a waste of learning opportunity for the media to provide low-level popular entertainment on commercial grounds, rather than enriching programmes which are likely to bring far greater benefits to society as a whole. It is not effective to keep parents at a distance from the school education of their children or to have them believe that their role in this is negligible. It is not conducive to success if the parents and the public in general do not understand the rationale behind changes that are sought in the education process, since attitudinal resistance may well defeat what is being attempted. In brief, effective curriculum renewal involves coherent effort in many areas all at once.

In the next Chapter, we set out the *Framework* of concepts, processes, systems and representations to improve the quality of learning in Hong Kong through the TOC initiative.

3 The *Framework* of Concepts, Processes, Systems and Representations for Target-Oriented Curriculum Renewal in Hong Kong

Part One of this chapter outlines the nature and purpose of the *Framework*. In Part Two we discuss improving the capability of teachers and other contributors to the curriculum renewal process. In Part Three we set out ideas for improving the quality of the curriculum, and in Part Four we discuss the development of plans to improve the quality of learning through the TOC initiative.

3.1 Nature and purpose of the *Framework*

The purpose of the TOC initiative in Hong Kong is to set in motion a process of curriculum renewal to improve the quality of learning for all students. In order to ensure coherence and consistency of development in such a large scale, system-wide initiative, a *Framework* was called for to provide a common guide to the process for all contributors: students, teachers, principals, curriculum developers, examiners, policy-makers, teacher educators, publishers, researchers, and others.

The *Framework* is composed of concepts, processes, systems and representations which derive from the contextual and conceptual considerations outlined in the previous chapter, and which are designed to underpin what needs to be done to improve the capability of teachers and other contributors to the curriculum renewal process, and to improve the curriculum. For example, concepts such as "professional development", "learning targets" and "bands of performance" are introduced and defined. Processes such as "bringing about professional development through in-service education", "setting learning targets" and "developing learning tasks" are described. Integrative systems for "the curriculum" and for "the process of carrying out a learning task" are elaborated. Pictures of the major concepts and some of their more important relationships are set out in Appendix 1 and Appendix 2.

The *Framework* is dynamic, giving rise to a number of interrelated activities to be carried out. It highlights the need at one and the same time to improve the capability of teachers and other contributors, and the quality of the planned curriculum, the resources available, and of curriculum reality in the classroom. With regard to the planned curriculum, the *Framework* is cross-curricular in nature, and integrates all levels of the curriculum, i.e. the curriculum as a whole, curriculum areas, subjects and dimensions. With regard to curriculum renewal, the *Framework* interrelates all phases of the curriculum renewal process, i.e. planning for learning, resourcing for learning, teaching for learning, assessing for learning and evaluating for ever-better learning.

The *Framework* is not to be seen or used in a linear or hierarchical manner, but rather as a means for engaging in cyclical and integrative curriculum renewal with parts shaped and reshaped by all other parts, but with all parts aligned with the conceptual principles and contextual requirements set out in Chapter 2.

The purpose of the *Framework* is to provide a sound theoretical and practical foundation for the TOC initiative in Hong Kong, and to ensure coherence in what is done among all contributors to the initiative.

3.2 Improving the capability of teachers and other contributors to the curriculum renewal process

Professional Development

The term **professional development**, as it is used here, covers all forms of activity designed to upgrade the educational knowledge and capability of those engaged in the education process. The planned curriculum can only be as good as the knowledge and capability of those who design it. The curriculum reality that emerges in the classroom as a result of the interaction between students, teachers and resources can only be as good as the teachers and resources enable it to be.

Crucially, it is the teachers who play the major role in bringing about learning in the classroom, through their choice of learning experiences and through the support they provide to learners engaging in them. No matter how good the curriculum intentions and materials may be, it is teachers in interaction with students who bring them alive and who create and manage the learning experiences through which learners construct, use and reconstruct knowledge. The professional development of teachers is thus the most crucial element for effective curriculum renewal. It should not be forgotten, however, that it is necessary to ensure that policy-makers, administrators, curriculum developers, teacher educators, materials-writers, examiners and others also engage in ongoing professional development.

Drawing up a professional development plan

Before engaging in a curriculum renewal initiative such as TOC, it will be essential for the **Education Department to draw up a professional development plan to ensure that the capability of teachers and other contributors to the education process is improved.** This plan should be concerned with life-long professional development and encompass pre-service education, induction support, in-service education and in-school staff development.

Schools should also be required to draw up their own in-school staff development plan, based on the Education Department's plan and their own particular needs and context. This should be submitted to the Education Department to provide an overall picture of staff development in all schools for subsequent support and monitoring purposes.

Bringing about professional development through pre-service education, induction support and in-service education

There is a need for a **seamless pathway of professional development**, embracing pre-service, probationer and in-service levels. All those engaged in the education process should be encouraged to pursue studies on credit-bearing courses, and work for ever-better knowledge and qualifications on a life-long basis, following the principles set out in Education Commission Report No 5 (1992 : 62). There are various forms of **professional development** at various levels. They should form an integrated pathway of progress.

Pre-service teacher education and induction support

Through pre-service teacher education student-teachers should be enabled to meet the challenges of education in the 21st century. This requires, in Hong Kong, a fundamental revision and immediate lengthening of the existing pre-service Certificate of Education courses to a minimum of three years from Form Seven entrance. The target should be to have all entrants to the profession follow three year courses to degree level + a fourth year doing a PGCE, or four year B.Ed courses, both of which would lead to qualified teacher status, as soon as possible. It is unrealistic to expect that initial teacher capability will be improved to any great extent through a restructuring of existing teacher certificate courses alone. Extra time must be provided to prepare teachers for the complexities of working in today's schools.

It is essential that the pre-service teacher education curriculum itself be imbued with the same concepts, processes and principles as those that the student teachers are to apply in their teaching. Beginning teachers tend to teach as they themselves were taught, rather than according to any new principles set out but not exemplified in a teacher education course. Thus, if student teachers are asked to conceptualise the school curriculum as a whole, then it is important that the teacher education curriculum is itself planned as a whole, rather in separate compartments, such as academic studies, professional studies and general studies, with little attempt made to show how they are interrelated or contribute to the whole. If student-teachers are being asked to apply learning targets, holistic learning tasks, and criterion-referenced assessment in the classroom, it is important to ensure that these form part of the course that the student-teachers themselves experience. Since learning involves the active construction, use and reconstruction of knowledge, it is not appropriate to deliver teacher education programmes through a predominantly transmissive mode. Since quality interaction is at the heart of the TOC initiative, it is important that student-teachers experience quality interaction with tutors, fellow student-teachers and with good learning resources.

In brief, it is necessary for teacher educators to provide student-teachers with learning experiences on pre-service courses which prepare them for working with an integrated target-oriented curriculum which focuses on the construction, use and reconstruction of knowledge through engaging in purposeful, contextualised tasks. This will necessitate the professional development of teacher educators themselves, so that they can design and deliver a teacher education curriculum aligned with a target-oriented, task-centred school curriculum, and keep up with contextual and conceptual change.

A crucial part of pre-service teacher education is **school experience**, since there is a growing awareness that the initial experiences of student-teachers in the classroom are crucial to their future development as practitioners. These initial experiences should be so arranged as to bring about a high degree of integration between theory and practice, and **partnerships between schools and teacher education institutions**. Such partnerships should lead to teacher-tutor exchanges, and to collaborative team-teaching with students, tutors and experienced teachers all involved, as in the Initial Training and In-Service Education and Training (IT INSET) model promulgated by Ashton et al (1983). This offers teacher educators opportunities for gaining recent and relevant classroom experience.

Beyond the pre-service teacher education experience is the induction or probationary period. Unless well structured and supported, this can be a negative experience for many teachers. Mentorship schemes and other **induction support programmes** have now been introduced in a number of countries. Effective probationer induction schemes

should become part of normal practice in Hong Kong schools with mentors paid for their services, as is becoming the practice elsewhere.

In-service teacher education

In order to move as quickly as possible from the current stage of "formalism" into the stage of "meaning" (Beeby 1973), and towards an all-graduate teaching profession, it will be important for the Government to ensure that there is funding and provision for a unified and coherent in-service programme on a credit-bearing basis, designed to respond to the needs of Kindergarten, primary and secondary teachers, towards degree and post-graduate qualifications, as envisaged in Education Commission Report No 5 (1992). This unified in-service education programme should involve full-time and part-time courses, long and short courses, workshops and seminars, school-based staff development programmes and school support exercises, all of which should be properly integrated. Initially, Government funding for such a programme must be provided, though over the years, as schools become increasingly responsible for their own budgets and their own staff development, it may be possible to work towards an element of self-funding for certain courses.

Longer-term credit-bearing in-service courses will provide the most effective means to improve the capability of teachers and other contributors to curriculum renewal, and should therefore form the major element in the professional development plan. Longer-term courses should provide teachers with an opportunity to reflect on practice and on the theories underlying this, and to become familiar with the best that is known about learning, progression, knowledge and the curriculum, and their subject(s) within it. Such courses should be designed to enable teachers to engage in classroom research and curriculum renewal.

Other shorter-term forms of in-service education that focus specifically on aspects of the TOC initiative must also be provided. In-service education of this sort can take many forms. Each will have its own objectives, likely outcomes, processes, strengths and weaknesses (Clark 1989).

Perhaps the most common form of in-service education focusing on curriculum renewal initiatives is the **short course**. Short courses are generally mounted to disseminate new information, and to spread new ideas to teachers who are then charged with passing these on to other teachers. They generally take place out of school and are organised by tutors. Teachers do not participate to any great extent in deciding what the course content should be, nor do they play a very active role during the course. Short courses are information-based and tutor-dependent.

In-service education focussing on a particular aspect of an initiative may take the form of a series of **task-based workshops** to produce something for the classroom such as a syllabus, some learning materials or a set of tests. Workshops generally take place out of school, involve teachers in discussing and doing, and are activity-based and group-dependent. It is common for a tutor to act as facilitator.

There is also the **action research** or **curriculum renewal group**, whose purpose is to search for and try out possible solutions to a common problem or set of problems (Rudd 1973, Clark 1987). This brings teachers together to analyse their classroom practices with a view to pinpointing areas where improvement is required. They then search together for possible solutions, plan actions, try things out in their classroom, observe and evaluate the process and the products, and then re-engage in the renewal cycle, mutually supporting each other all the while through the exchange of information and experiences. Meetings are usually held out of school with the support of a tutor. Such

Such groups will be of particular value in the TOC initiative and should be encouraged to develop, trial, evaluate and review the teaching, learning and assessment resources and strategies required to put a target-oriented curriculum into practice.

Then there are the various forms of **school-based staff development work**. These may be formal and informal, ranging from ad hoc staff meetings, to regular panel meetings in different subject areas, to whole school projects designed to improve an aspect of teaching and learning across the whole curriculum. These take place in school and are whole-staff-based. They may call upon the support of an outside consultant.

One problem that arises with short courses and seminars is that of information-overload. Information has a tendency to expand to fill whatever time is available, so that more and more subject matter is introduced, and less and less time is given to the participants to verbalise it in discussion and handle it in workshops.

Another problem is that transfer of course information into classroom practice does not always take place. This may occur because the timetable, class size, classroom environment, school ethos, pupil learning habits, or the all-powerful scheme of work and exams do not permit it to happen. Or it may be because the teachers do not find the new ideas plausible and are not really convinced of their value. They may not have been given the time to become familiar with them and are therefore unwilling to try them out, since it will mean extra work. Teachers require support from within their schools, and from tutors following up the work done on a course. Follow-up work is seldom funded or provided, however, and support from within the school for innovation is often lacking.

Another problem is that the teacher may not be at a level in the school hierarchy where it is possible to launch change. It is important to ensure that the ones who engage in teacher development exercises first are the real change agents in a school, who can set the climate and support those that follow.

With the action research or curriculum renewal group, many of these problems are overcome, since teachers are active agents in the renewal process. Information is not given, it is sought. Those in the group analyse problems, search for solutions, plan possible actions, try things out, observe and evaluate what happens, permanently striving to improve what goes on in their classrooms. It is helpful for the group to have the support of a tutor who can provide information in response to the group's needs and coordinate progress (Clark 1987 : 134-138). It is crucial that the tutor act as critical friend or devil's advocate, in order to challenge or provoke, so that what often develops into cosy insider-thinking within the group is continually put to the test. In this form of in-service education there is no problem of information-overload, since teachers seek out and work through information at their own pace. There is no problem of transfer, because they are planning, trying out, and evaluating action in their own classrooms in between meetings. There are problems, however. Progress is often slow, erratic, and somewhat incoherent, and is restricted to those who are committed enough to devote time and energy to it.

The advantages of the action research group are obvious. Teachers are engaged not only in improving classroom procedures, but also in learning how to observe their own classroom, how to derive theory from classroom practice, how to use theory to illuminate classroom practice, how to conduct experiments, and how to evaluate what happens. They are constantly moving from action to reflection and back to action again.

There are, then, various forms of in-service education and professional development, serving different purposes and likely to lead to different sorts of outcomes. It will be

crucial to put the major emphasis on longer-term credit-bearing courses. It will also be necessary to plan a programme of more focused in-service work, and to ensure that within this there is an emphasis on setting up curriculum renewal groups. There should also be a major focus on school-based staff development, since many of the changes asked for through the TOC initiative involve a **whole school approach** to planning, resourcing, teaching, learning, language across the curriculum, assessment and evaluation.

It will be necessary to have at least one teacher in every school - perhaps the teacher in charge of the curriculum - to be identified as the **school coordinator for TOC**, whose task it is to become immersed in the TOC developmental process and foster the initiative within the school. It will be necessary to run special professional development courses for TOC coordinators and to seek for ways in which to involve them directly in developmental groups. TOC coordinators should then become responsible for planning and coordinating staff development in their schools and for encouraging the trialling, evaluation and review of ideas, processes and resources. Time for such work and for whole school development exercises must be provided. This demands that schools set aside staff development days and that they timetable curriculum renewal meetings for all staff and for each subject department. The Education Department should facilitate staff development and curriculum renewal initiatives in school.

It will be important for teacher educators in the new Hong Kong Institute of Education and in other tertiary teacher education faculties to contribute professional assistance to schools in their efforts to develop their own target-oriented curriculum. It will be necessary for the Education Department to hire the services of teacher educators and perhaps use the staff in the Advisory Inspectorate to form groups of **district coordinators** to support the schools in the district to which they have been assigned.

Developing an inclusive curriculum renewal process plan

Perhaps the most effective way of engaging teachers in professional development is to involve them directly in the curriculum renewal process (Clark and Macrae 1987). Learning by doing, provided there is a critical climate established, is often more effective than attending courses.

It was argued in the previous chapter that evidence from many curriculum renewal initiatives indicated that **teacher involvement** in all phases of the exercise was necessary to bring about a sense of ownership among teachers. There are many ways in which teachers can be involved in a curriculum renewal initiative, ranging from consultation at the weakest and least effective end of the spectrum to self-initiated or supported curriculum renewal work at the strongest and most effective.

The Education Department must develop an **inclusive curriculum renewal process plan** to ensure **teacher involvement and the involvement of other contributors** in all the curriculum renewal groups charged with the responsibility of developing ideas, processes and resources to support the TOC initiative, and of trialling, evaluating and reviewing them.

The need for whole school involvement

Experience within Hong Kong, as elsewhere, indicates that many initiatives undertaken by individual teachers can be thwarted in school by lack of support from principals and panel chairpersons (Clark 1989). It is not possible to bring changes to the way students perceive learning through one subject alone, if other subject teachers are unwittingly acting against this. Many of the most important changes that need to be brought about

affect the whole school curriculum and require to be supported by a whole school approach. The TOC initiative is of this type. It is, therefore, essential to have the TOC coordinator in every school take the initiative forward and **involve the whole staff** in the development, trialling, evaluation and review of all aspects of the school's target-oriented curriculum.

Involving a whole school in curriculum renewal encourages it to develop cross-curricular policies and practices, and structures for formulating, trialling, evaluating and reviewing them. These provide a useful foundation for later developments.

A four-phase inclusive curriculum renewal process

It would seem sensible to envisage a four-phase curiculum renewal process for the TOC initiative. In the first phase, teachers and others are involved in designing the overall TOC initiative plans and resources. It would be helpful, even in this first phase, to have one or two schools in which a group of teachers is involved in the design exercise, who could provide a whole school perspective on what was planned. In the second phase, small-scale trialling and evaluation in schools with teachers who have been associated with the initial planning exercise is required. When revisions have been made to plans and resources as a result of this, the third phase of larger-scale trialling might start. Schools should be enabled to choose their own optimum time for entering the trialling period, i.e. at the second or third phase, and their own optimum speed of development. The fourth phase would only start when all schools were ready to participate in all parts of the TOC exercise.

The establishment of an inclusive curriculum renewal process which involves teachers and whole schools will over time address the problem that there is little tradition of teacher and whole-school curriculum renewal in Hong Kong.

3.3 Improving the quality of the curriculum

The task of improving the quality of the curriculum involves research, development, trialling, evaluation and review in each of the following interrelated activities:

- Setting learning targets;
- Developing and organising learning tasks;
- Selecting, adapting and creating learning resources;
- Teaching for individual learning;
- Assessing student learning;
- Evaluating the effectiveness of renewal initiatives;

Setting learning targets

Learning targets

Learning targets are expressions of what learners are to learn to do better and better. They describe the purposes for learning and using knowledge in the curriculum as a whole, curriculum areas, subjects and dimensions. Learning targets set the directions for learning for all learners and should represent a consensus on where education is headed. They should capture the essence of what education and learning are all about.

Learning targets form an integrative and interactive system from the most general holistic target to more specific learning targets and learning objectives. An integrative system of learning targets is a means of ensuring coherence of direction and consistency of purpose at all curriculum levels, and in shorter-term and longer-term learning, so that every student, in progressing through each phase of schooling, develops a conception of the purpose of education as a whole in harmony with the purposes of learning in each curriculum area, subject and dimension. Such an integrative system of learning targets addresses the problem that in Hong Kong teachers and learners do not at present have a very clear sense of direction, or of how to ensure that shorter-term learning is in harmony with longer-term aims.

The integrative interactive system of targets embodies the following:

- a learning target for the curriculum as a whole;
- a learning target for each curriculum area;
- a learning target for each subject;
- a learning target for the dimensions of each subject;
- learning targets within dimensions;
- learning objectives.

The learning targets for the curriculum as a whole, for curriculum areas and for subjects describe broad, unchanging purposes for learning and using knowledge at each level. Students develop ever-improving capabilities as they work towards these targets from Primary 1 to Secondary 5. Their ever-improving capabilities are described through a progressive series of stages or bands of performance.

The learning targets for dimensions of each subject do not change as students progress, but will vary in the amount of importance each bears at each Key Stage of learning.

The learning targets within dimensions are holistic, i.e. they give rise to fully integrated tasks, rather than to focuses on individual ideas or part-skills. The learning targets within dimensions, however, change, becoming ever-more challenging as students progress through Key Stages. Learning targets within dimensions provide learners with shorter-term specifications of what it is they are to learn to do; while learning targets for the dimensions, subject, curriculum area and whole curriculum provide a longer-term sense of direction and purpose. This ensures that shorter-term learning is always done in the direction of longer-term learning, and is thus consistent with it.

Learning objectives, at the most specific level of the targets system, identify conceptual, process, metacognitive and representational components of the framework of knowledge appropriate to each Key Stage. Learning objectives should never be seen in isolation, but always within the context of a particular learning task deriving from the learning targets. Learning objectives emerge from a consideration of what students need or wish to know when carrying out a particular task. They provide teachers and learners with suggested focuses for teaching and learning, prior to, while or after engaging in a task. Whereas the learning targets are common to all students and prescribed, the learning objectives have the status of recommendations.

It is important to check across subjects that learning targets are pitched at the same level for each Key Stage. It is also helpful to explore and make explicit conceptual, process, representational and metacognitive connections across subjects.

Learning targets are designed to:

- embody coherence and continuity in learning across all Key Stages in all subjects across the curriculum;
- enable students at every Key Stage to understand the purposes fulfilled by each subject;
- embody coverage of the range of learning;
- provide for differentiated progression towards broad targets, rather than attempting to prescribe common linear achievement through a multitude of more specific objectives likely to distort the purposes of learning;
- highlight the connections within subjects and across the curriculum;
- allow for assessment of student performance against them.

Developing the learning target system involves prior consideration of the nature of the curriculum and specific subjects, and of the nature of the learning process. These can perhaps best be conceptualised in terms of:

- the learning purposes to be fulfilled by the curriculum as a whole, by each curriculum area, and by each subject;
- the contexts within which the above are to operate;
- the modes or processes of inquiry, thinking, organising, problem-solving, reflecting and communicating that are involved in the learning process. These draw upon the conceptual, process, metacognitive and representational aspects of knowledge which will need to be developed in the curriculum as a whole, and in each curriculum area and subject;
- the products of the learning and use of knowledge in the curriculum as a whole, each curriculum area and each subject;
- the characteristic values and attitudes to be developed.

Some examples of what is meant by the above when applied to learning targets are given overleaf:

The learning target for the curriculum as a whole might be set out as follows:

> To develop ever-improving intellectual, aesthetic, social, ethical, emotional and physical capabilities to lead a full life as an individual and to play a positive role in the life of the community.

The learning target for the curriculum area "Language" might be expressed as follows:

> Learning and using language enables students to communicate; learn, think and know; solve problems; form judgements; develop values; and reflect upon language in use, the uses of language, and language learning;
>
> Learning another language, in addition to the first, offers the potential to understand another culture(s), gain wider networks of relationships and increased academic and vocational opportunities, as well as to gain a greater awareness of language and culture.

Contexts in which the learning and use of language might be placed include the home, the school and other study contexts, the wider community, the workplace, the media, and for tourism and leisure pursuits (e.g. cinema and reading for pleasure).

Conceptual, process, metacognitive and representational knowledge in mathematics, for example, would have to embrace the fact that using mathematics is essentially problem-solving. Engaging in mathematical argument involves thinking and communicating. Thinking involves using knowledge structures to solve problems, make conjectures, build models, make applications, and demonstrate reasoning. Mathematics involves constructing evolving conceptual products such as laws, axioms, theorems and algorithms, and communicating these to others through verbal language, mathematical symbols, and in graphs, diagrams, figures, charts and other representations.

The values and attitudes to be developed through mathematics, for example, might be described as follows:

- valuing simplicity, accuracy, precision, economy of effort, consistency, coherence, clarity, elegance and truth;
- understanding that several ways of solving problems can be acceptable; that some problems have no single right answer; that statistics can easily be misused; and that new knowledge, processes and applications of mathematics are constantly evolving;
- having confidence in using mathematics to solve problems, communicate ideas, and to reason; flexibility in exploring mathematical ideas; willingness to persevere in mathematical tasks; and curiosity and inventiveness in doing mathematics.

Table 3 overleaf sets out the subject and dimension learning targets for English. These operate for all four Key Stages.

Table 3: Subject and dimension learning targets for English

SUBJECT TARGET

To develop an ever-improving capability to use English
to communicate with others
to acquire, develop and apply knowledge
to think and solve problems
to respond and give expression to experience;

and within these contexts, to develop and apply an ever-increasing understanding of how English is organized, used and learned

DIMENSION TARGETS

Interpersonal Dimension

To develop an ever-improving capability to use English:

to establish, maintain and develop relationships;
to exchange ideas and information;
to get things done.

Knowledge Dimension

To develop an ever-improving capability to use English:

to find out, interpret and use information, and to provide it;
to explore, express and apply ideas;
to solve problems.

Experience Dimension

To develop an ever-improving capability to use English:

to respond and give expression to real and imaginative experience.

In addition to considering the nature of the curriculum and specific subjects within it, and the nature of the learning process, it is essential to embody in the learning targets what we know about developmental trends in progression at the within-dimension target level. It is these targets which are designed to capture the essential in progression in the shorter-term. At this level it is important to bear in mind that progression entails moving from the familiar to the unfamiliar, from identifying and labelling to elaborating complex classificatory systems, from experimenting with objects in the environment to the handling of abstract ideas and the proving of theories and validating of findings, from intuitive reasoning to logical argument based on evidence or principles, from talk based on the here and now to the more abstract use of the specialised language of different subject areas.

An example of how such trends are embodied in progressive within-dimension learning targets at each Key Stage for the Interpersonal Dimension in English is provided in Table 4 overleaf.

Table 4: Within-dimension learning targets for the Interpersonal Dimension of English

Within-dimension learning targets for the Interpersonal Dimension

KEY STAGE 1	KEY STAGE 2	KEY STAGE 3	KEY STAGE 4
to establish and maintain relationships and routines in carrying out classroom activities	to establish and maintain relationships and routines in school and other familiar situations	to establish, maintain and develop relationships and routines in school and community situations	to establish, maintain and develop relationships and routines in school, community and work situations
to converse about likes, feelings, interests and experiences and those of family and friends	to converse about likes feelings, interests, preferences, ideas, experiences and plans	to converse and exchange points of view about feelings, interests, preferences, ideas, experiences and plans	to converse, compare, argue and justify points of view about feelings, interests, preferences, ideas, experiences and plans
to exchange short simple messages such as greeting cards and notes	to exchange messages through writing simple letters, making telephone calls and to receive and send postcards and invitations	to produce or exchange a range of formal and informal messages both oral and written	to produce or exchange a range of complex messages both oral and written
to make simple arrangements with others for carrying out simple events	to participate with others in making choices and decisions for carrying out simple events	to participate with others in planning, organising and carrying out events	to participate with others in planning, organising and carrying out complex and extended events

When learning targets across the whole curriculum at the various levels are matched against each other, it becomes possible to confirm cross-curricular connections. These connections may be in the form of:

- cross-curricular themes or overarching ideas that permeate subjects, e.g. "form", "origin", "change", "function";
- cross-curricular processes or task-types such as inquiry, reflecting, creating, evaluating, performing, problem-solving;
- systems underlying knowledge and action, e.g. classificatory and explanatory systems;
- cross-curricular representations such as narratives or reports, and common visual representation-types (e.g. flow-charts, pie charts, graphs) across subjects.

Learning targets can only be developed through a process of drafting, redrafting, consultation, review and continuous refinement to ensure that they are coherent and clear. They need to be constantly evaluated in the light of their use in the classroom against a range of criteria, which might best be expressed in questions such as:

- Are the learning targets for the curriculum, for curriculum areas, for subjects and for dimensions expressed at a sufficient level of generality to guide long-term learning?
- Are the learning targets within dimensions holistic, but nevertheless specific enough to indicate what learners are to learn to do in the short term?
- Do the learning targets within dimensions capture the essential in progression across the Key Stages?
- Are the learning targets and learning objectives clear and unambiguous to teachers and students?

Learning targets should be kept to a small number. They need to capture the essence of what education and learning are all about in both the shorter and longer term. They should not exceed about 20 per subject per Key Stage to cover the whole subject, dimension and within-dimension levels. With holistic task-generating learning targets of this nature, there is every hope that teachers and learners will focus primarily on the essential in learning, rather than concentrating too much on atomistic detail.

Developing and organising learning tasks

Learning tasks

Learning tasks are the purposeful and contextualised means by which students work towards the learning targets. They are holistic experiences which involve both learning and using knowledge. They address the problem that in Hong Kong schools teachers tend to adopt a transmissive approach , which means that students do not often have to construct, use and reconstruct knowledge in tasks that involve inquiry, thinking and communicating, problem-solving, creating, performing, judging or reasoning.

Learning tasks are designed for learning targets at all curriculum levels. They encourage students to make connections among knowledge structures. This addresses the problem that the current curriculum is somewhat fragmented in nature, and that there is little conception among teachers or students of the curriculum as a whole or of curriculum areas.

At the whole curriculum level, a task will inevitably be very broad. For example, work-experience in the 6th Form would involve students in integrating knowledge from many subject areas in the solution of whatever problems they are presented with in the workplace.

An advanced curriculum area task for language might involve comparing and contrasting an article in Chinese and an article on the same topic in English to discover how writers in each community structure information.

An example of a learning task related to the learning target for the subject as a whole would be a project involving searching for, collating, processing, organising and presenting knowledge to others.

A learning task for a learning target within the Interpersonal Dimension in English might be to write a letter to an English-speaking friend to express thanks for a gift.

Within each Key Stage, learners should engage in tasks which cover the full range of learning targets at all levels of the curriculum.

A learning task includes a purpose, a context, a process and a product:

a purpose: an underlying reason for undertaking the task (beyond the mere display of subject knowledge)

a context: the thematic, situational, and interactive circumstances in which the task is undertaken. The context may be real, simulated or imaginary. It includes considerations such as where the task is taking place, when, who are involved, what previous shared experiences and what relationships they have.

a process: a mode or process of inquiry, thinking, problem-solving, performing, creating or using knowledge which draws upon interrelated conceptual, process, representational and metacognitive knowledge.

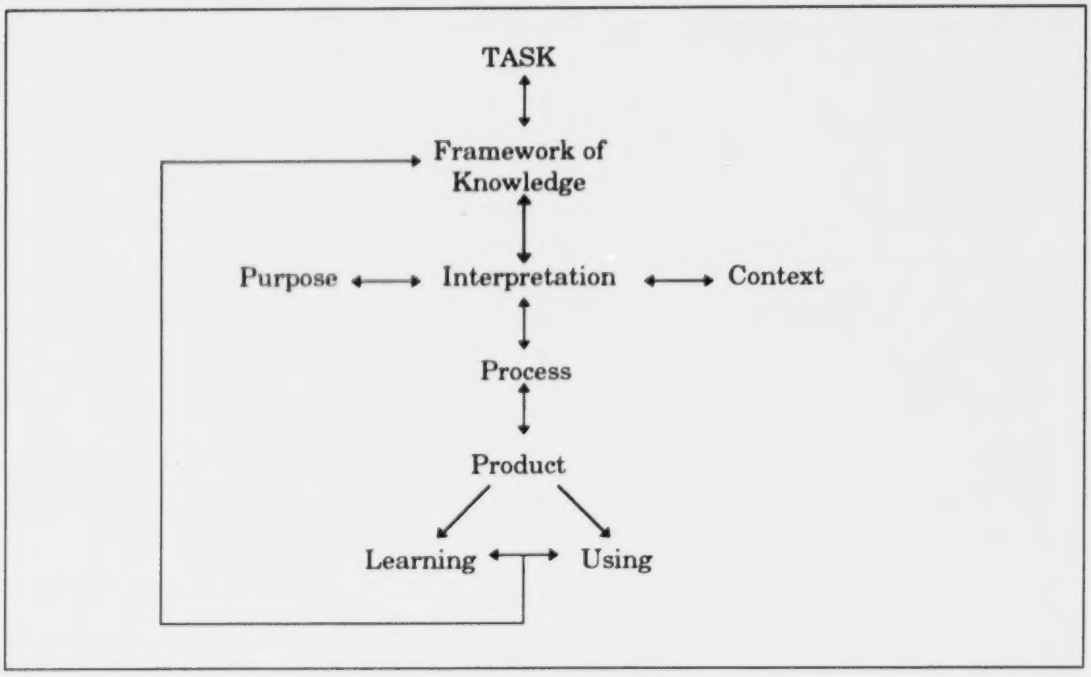
a product: the result of completing a task. The **learning product** is an ever-improving framework of knowledge. **Products emerging from the use of knowledge** may take the form, for example, of a plan of action, a creation, a solution or a report. Some products are visible (a diagram). Others are invisible (an interpretation in the head, or further learning, unless communicated).

When students carry out a learning task, they draw upon their existing framework of knowledge to interpret what they are being asked to do in terms of the purpose and context set. They then engage in the process of carrying out the task to achieve a product, continually refining their interpretation of what has to be done. In this process the existing framework of knowledge may be extended or reorganised. Figure 3 overleaf sets this out visually.

Good learning tasks may be said to:

- involve judicious use of existing subject knowledge and challenge learners in their "proximal zone of development" (Vygotsky 1978);
- involve the active construction of knowledge by the individual student, i.e. thinking and applying knowledge rather than simply receiving such knowledge fully specified in advance;
- focus on the integration of strands of knowledge rather than on isolated components;
- involve interaction with others, with texts or other forms of representation;
- involve reflection.

Figure 3: The process of carrying out a learning task



In addition, learning tasks should provide intellectual challenge, appeal to students' imagination and expand their interests, develop confidence and provide a sense of achievement and enjoyment, and cater for individual differences in learning. An example of a learning task for English at Key Stage 2 is provided below.

Table 5: An example of a learning task

Activities done with family members

1. Students complete a chart to show the activities or jobs they do regularly with different family members. The chart has the `How often' words filled in along the top. Students fill in the names of five or six family members down the left hand column. They write some activities that they do (or do not do) with each family member. Students are guided to complete the chart by answering questions such as: What do you always do with your mother/ father? What do you sometimes do with your grandparents? What do you never do with your brother? For example,

	always	usually	sometimes	never
Mother	do homework	go shopping		
Father			ride a bike	
Grandma/ pa				play mahjong
Brother/ Sister		fight		

2. Students, in groups of four, share the information on their charts. They take turns to ask one other person in the group who they always/ usually/ sometimes/ never do one activity with and they write the answer down (e.g. Mai Lee always rides her bike with her father; Ming Fai never plays mahjong with his grandmother). Each group then reports its findings to the whole class.

Learning focuses

Learning through tasks can be supported by focusing on the specific knowledge needed to engage in the task or strengthen performance on the task. **Learning focuses** can encompass concepts, processes, representations and descriptive and explanatory systems which need to be given particular attention within the context of a task. Such focused work can take the form of explicit teaching of particular points, or providing students with sub-tasks or exercises. This type of focused work may take place before, during or after a task.

In summary, learning tasks (and learning focuses within them) provide the means through which learners construct, use and reconstruct knowledge, make connections across knowledge structures and progress towards the range of learning targets.

Task-types

In order to ensure that learners experience a comprehensive range of learning tasks generated from the range of targets, it is helpful to identify **task-types.** These are broad modes of learning and using knowledge.

Task-types for the curriculum as a whole might include:

- inquiring, interpreting and presenting;
- problem-solving;
- performing;
- creating / designing / composing;
- judging / evaluating / responding.

When applied in particular subjects, the task-type of creating, for example, might involve composing a fugue (music), writing a story (language), designing a tool (design and technology), or painting a picture (art). Problem-solving in mathematics will involve handling concepts such as number, spatial relationship and so on, whereas problem-solving in languages could involve discussing a social dilemma or planning a holiday. A range of task-types should be devised to reflect the nature of the subject, from which a wide range of tasks can be derived.

The grading of learning tasks

Learning tasks should be graded and sequenced to respond to progression in learning. The following characteristics underlying task complexity and level of challenge to learners may be helpful when grading tasks:

1. extendedness : refers to the length, scope and duration of tasks. How long and how broad is the task? How many steps are involved in the task?

2. inherent complexity : refers to the number, range and relationship of variables in a task and to the level of abstraction. Does the task involve static or changing events and circumstances? How many participants are involved in the task and does their relationship remain stable? How much abstract thinking or generalisation from specific information is required?

3. demand in terms of previous knowledge and level of application : refers to the level of previous knowledge required, and the extent to which this has to be applied to a new context. Does the task require students to apply knowledge and skill acquired on prior learning tasks in a new context? Does the task require a high level of previous knowledge?

4. support level provided : refers to the nature and level of support given for carrying out the learning task. How much and what kind of support is provided through resources or by the teacher?

Increasing the extendedness, inherent complexity, demand in terms of previous knowledge and level of application, and reducing the level of support provided leads to ever-increasing demands on learners as they progress in their learning.

Tang (1994) suggests that visual support to understanding may need to be provided for students who are learning through the medium of a second language and may, therefore, be having language problems, through providing graphics such as flow charts, graphs, and sequential and classificatory tables to support understanding of particular knowledge structures.

An example of how support can be provided is given in the extract overleaf from *Focus on Reading and Writing* (Mahon 1994).

Grouping tasks into units of work and modules by means of organising features

A **unit of work** is a short-term learning plan in which tasks may be integrated by means of an organising feature. **Organising features** are derived from conceptual, process, representational and metacognitive aspects of knowledge. For example, a unit might be based on "Pirates" (conceptual), or on writing a school magazine (conceptual, process and representational), or on encouraging students to become aware of strategies for developing their own reading or writing (metacognitive and representational).

A **module** may be used to integrate units of work, also by means of an organising feature. On the other hand, a module may simply represent a sequence of unrelated units of work brought together to provide variety, interest and range in learning.

Units of work and modules should be selected on the basis of the need to cover the range of learning targets and objectives, and the need to maintain and develop learners' interests.

Graded tasks, units of work and modules are the basic elements for constructing learning resources.

Selecting, adapting and creating learning resources

Learning resources refer to any published or unpublished material in any medium, and to equipment used for the purpose of teaching and learning. The term can be extended to include human resources such as teachers and librarians, within the school and the community.

▷ Brainstorm!

In your group, write down the names of as many animals as you can think of.
Put a ✓ next to all the animals people can keep as pets.

How many different pets did your group think of? _____

Which pet is the most unusual? _____

Which pet would you like to have? _____

Now ask everyone in your group:

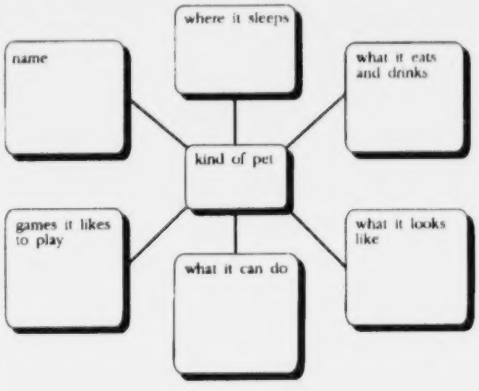
Which pet would you like to have?

Fill in the table below.

Names of friends	*Pets*

▷ Word star

In your group think of an unusual pet you would like to have. Talk about the pet with your friends and make notes on the word star.



Draw a picture of this pet in the box.

▷ Write the first draft

Imagine that you have this pet. Use your notes and write a paragraph about your unusual pet.

▷ Revising and editing

Read your first draft again. Think about these questions.

- Can I make my writing more interesting?
- Do I need to put in any new words or sentences?
- Do I need to change any words or sentences?
- Do I need to change the order of the sentences?

☆ *Make changes to your draft now. Remember to check your capital letters, full stops and spelling.*

☆ *Write your paragraph on another piece of paper. You may draw pictures of your unusual pet.*

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Developing a learning resources plan

A **learning resources plan** needs to be developed to ensure that there will be a wide range of resources aligned with the rest of the curriculum. The resources need to be based on current conceptions of how learning is best promoted and how knowledge is best constructed and used. The plan should encompass resources which provide a wide range of target-related learning experiences for each level of the curriculum system. They should encourage inquiry, thinking, problem-solving, reflecting and communicating. They should provide intellectual challenge. They should capture and expand students' interests. They should be free of bias, stereotype and ethnocentricity. They should include a variety of **resource-types**, some of which are set out in the table below.

Table 6: Some resource-types (software and hardware)

Some Resource-Types
1. A multi-media resource centre with a library of reference and other reading material, and with graded learning resources organized into units of work and modules. This would include computer software, cassettes, videos and scripted material
2. Banks of realia, manipulables and models
3. Equipment such as computers, cassette recorders, video recorders

Resource centres

There should be **centralised resource centres** which house a wide range of teaching and learning resources to which teachers have easy access. These resource centres should provide facilities not only for examining and borrowing useful materials but also for making them. The Teaching Resource Centre in the Bonham Campus of the Hong Kong Institute of Education, which was set up through funding provided by the Hong Kong Language Campaign, could serve as a model for other subjects and other centres. It will almost certainly be necessary to set up a number of such centralised resource centres in each geographical area of Hong Kong to enable teachers realistically to reach them.

Schools should also have a proper multi-media resource centre which should contain not only the more traditional teaching materials, but also multi-media individualised learning materials designed to enable students to learn how to search for knowledge, process it and use it in some way. State-of-the-art technology needs to be provided, so that students can learn how to use it for accessing, storing and communicating knowledge. Much more emphasis needs to be placed in schools on independent study. This means ensuring that students have access to the sort of resources that enable them to study by themselves and in groups, with the teacher acting as facilitator rather than sole provider of knowledge.

Setting up an exchange bank of learning resources

The paucity of learning resources for differentiated learning and the lack of task-centred resources were highlighted in Chapter 2 as major problems in the Hong Kong education system. While publishers will be able to help in the creation of more differentiated task-based resources, there is a limit to what they can reasonably be expected to provide for commercial reasons. The Education Department, the Curriculum Development

Institute and schools, therefore, need to foster teacher involvement in resource creation and exchange.

It is essential for the TOC initiative that **an exchange bank of graded learning resources** be set up to enable schools and teachers to build up their resource centres as quickly as possible. Schemes established to create and exchange resources in Hong Kong include the Swapshop project developed for English by the Institute of Language in Education (Lee and Clark 1989), and the Telenex project developed in the Department of Curriculum Studies at the University of Hong Kong (Coniam et al, 1994). In the Swapshop project a small group of teachers contributed to an exchange bank of task-centred materials for English in Forms 1 - 3, thereby creating a small bank of resources available to all those in the group. One simple rule was enforced: In order to have access to the whole bank a teacher had to contribute at least one piece of original material. Telenex offers teachers a computerised range of ever-expanding ideas, activities, advice and exchange of information on the teaching of English through a network of interconnected computers linked to the Centre in the University of Hong Kong. One major part of the Telenex enterprise involves the establishment of a database and exchange bank of resource materials.

A common classification system based on Key Stages, bands of performance, dimensions and targets should be established for all resources created to fulfil the TOC initiative, which all materials-producers should be encouraged to follow. A computerised database of these resources should be established within the major centralised resource centres for each subject and made available to all schools.

Grading and packaging learning resources by Key Stage and band of performance

Learning resources can best be graded and packaged primarily according to the Key Stage(s) and band(s) of performance for which they are most suited, so that they are both broadly age-related and related to progress level. It is not realistic to have resources which do not take into account the age and maturity of students. A beginner in a particular subject at age 12 is not the same as a beginner at age 5, and requires different learning material. Similarly, a student aged 12 who is in band of performance 3 requires different material from a student of the same age in band of performance 6. It is necessary to envisage a series of learning resources broadly graded into age-related and band of performance-related packages. These could be identified by Key Stage first and then by band of performance, as indicated in the brackets after the verbal descriptions in Table 7 overleaf.

This would ensure that whatever strengths and weaknesses students displayed, there would be resources immediately available, from which one or more could be chosen, broadly appropriate to the age and progress level of each student, or each group of students within a class. It is entirely possible that a student in Key Stage 2 should be working on resources in Band of Performance 2 (2.2) in one dimension, in which he / she has a weakness, while working on resources for Band of Performance 3 (2.3) in other dimensions.

Resources within the same Key Stage and band of performance should themselves be graded. Tasks will be clustered into units of work, which can be sequenced within modules, which themselves can be sequenced within a scheme of work or learning programme. For very fine-tuning, different levels of support can be given or indicated for the same task, wherever possible.

Table 7: Learning resources related to Key Stages and bands of performance

Key Stage 1	Resources for students working towards Band of Performance 1 (1.0) Resources for students in Band of Performance 1 (1.1) Resources for students in Band of Performance 2 (1.2)
Key Stage 2	Resources for students in Band of Performance 2 (2.2) Resources for students in Band of Performance 3 (2.3) Resources for students in Band of Performance 4 (2.4)
Key Stage 3	Resources for students in Band of Performance 3 (3.3) Resources for students in Band of Performance 4 (3.4) Resources for students in Band of Performance 5 (3.5) Resources for students in Band of Performance 6 (3.6)
Key Stage 4	Resources for students in Band of Performance 4 (4.4) Resources for students in Band of Performance 5 (4.5) Resources for students in Band of Performance 6 (4.6) Resources for students in Band of Performance 7 (4.7) Resources for students in Band of Performance 8 (4.8)

It must be pointed out, however, that while it is helpful to have the means to differentiate learning material, such as the ones set out above, it is not possible to predict in advance with any certainty what level of material will prove suitable for any individual learner, since there are too many factors, such as previous knowledge, interest in the topic and others, that determine this. In graded reader schemes, for example, it has often been shown that a student with a particular interest in a subject can read text on that subject well above his/her normal level.

Setting out guidelines for the creation of learning resources

Together with experts and teachers, the Education Department should elaborate **guidelines for the creation and supply of learning resources** to assist publishers, those creating the exchange bank of graded learning resources, and suppliers of equipment. These should be based on the concepts and processes set out in this *Framework*, and should ensure that all resources are developed within the conceptions of learning, progression and knowledge, and of the effective use of language, and in line with the contextual requirements set out in Chapter 2.

For learning materials in English, the Education Department will need to commission experts to set out guidelines on the level and sort of English that should be used for all subject areas to be taught through the medium of English in the lower secondary years. With recent advances in the use of computers for concordancing it has become possible to plan and monitor in an integrated way the English that is used in learning materials across the curriculum more effectively than before.

Evaluating the effectiveness of learning resources

Criteria should be developed to assist teachers to **evaluate learning resources** in terms of the extent to which they seem likely to or have brought about an effective learning process and effective learning outcomes. These will assist teachers in their choice of resources, and provide them with guidance on how to evaluate their

effectiveness when using them. They might best be set out in the form of a series of questions such as:

- Do the resources cover the range of learning targets and task-types adequately?
- Are the learning resources suitably graded?
- Is the language in the resources and the uses of language by learners to which the resources give rise maximally effective for learning?
- Do the resources enable individual learners and groups to work on their own?
- Does the range of resources available address the strengths and weaknesses of students in the group for which they are being used?
- Is the equipment that is required readily available and practicable?
- To what extent is the style of learning embodied in the resources leading to learners taking some responsibility for their own learning?
- Is the classification system used for identifying and labelling resources sufficiently clear and sensitive?

Teaching for learning

Developing a teaching for learning plan

Learning is at the heart of the curriculum. It occurs through the interaction of students and teachers, and through the interaction between students and the learning resources they are provided with. Teaching can perhaps best be described as the provision of learning experiences embodying such interaction and the giving of the support necessary to learners in their learning. **A teaching for learning plan** needs to be drawn up that sets out a range of teaching strategies designed to provide the necessary learning experiences and support. **The teaching for learning plan** should be based on :

- an understanding of the learning process and of progression;
- an understanding of the nature of knowledge and of subject knowledge;
- knowledge of a wide range of learning experiences and the purposes each serves in the bringing about of learning;
- knowledge of how to support learners in their learning;
- knowledge of how to identify learner differences and of how to respond to them.

An understanding of learning and progression and of how to bring them about

In Chapter 2 the current conception of learning and progression was set out in the form of learning principles and developmental trends. **An ever-improving understanding of learning and progression** among teachers provides the basis for developing ever-improving strategies for effecting learning progress. The good teacher keeps an open

and inquiring mind with respect to classroom activity, which enables theory to be put into practice, and the findings from practice to be fed back into theory (Stenhouse 1975).

Implications for the development of teaching strategies from current conceptions of learning are that:

- students should be actively engaged in tasks in which they discover, construct, organize, communicate and use knowledge;
- students should be given opportunities to make connections, search for analogies, relate new concepts to previous knowledge and note similarities and exceptions;
- students should undertake a range of learning tasks, supported by particular teaching and learning focuses as required;
- students should be encouraged to be adventurous, imaginative and to explore;
- students should be encouraged to interact with their teachers, peers and others in pair-work or group work. Through listening and reading they can extend their knowledge structures, and through talk and writing they can shape their thinking and the expression of their thought;
- students should be given time for processing information and for formulating questions and responses; they need time to observe, discover and try things out;
- students should be provided with opportunities to revisit concepts and processes in a range of contexts to consolidate and extend learning;
- students should be given opportunities to interpret and communicate knowledge in a variety of forms, e.g. through spoken and written language, and graphics;
- students should be given opportunities to make conscious choices in their learning, to set personal goals and to become responsible for their learning. They should be encouraged to reflect upon knowledge and upon how to go about learning.

It is important that teachers of all subjects understand the role of language in learning and are able to adapt their talk to the level of the learners, to use language effectively to promote learning, to bring about effective student use of language, and to assist them when they are having language problems. Those students who are learning in lower secondary through the medium of English will require language support in all subjects. Teachers in English-medium classes need themselves to be comfortable in English, and to be able to handle the language problems of their students. Handling language problems should not be seen as the responsibility of the language teacher alone, since all teachers must inevitably be teachers of the language of their subject. It is, however, important that language teachers see themselves as a support service for learning in other subjects across the curriculum, and that they take the necessary steps to find out how they can best assist other teachers in this role.

Implications from current conceptions of progression are that learners should be challenged and provided with appropriate support, so that tasks reach into their proximal zone of development. They should be encouraged to think and to reflect in order to generalise from particulars and to find system and pattern underlying experience.

An understanding of the nature of knowledge and of subject knowledge

In Chapter 2 the current conception of knowledge was set out. This indicated that knowledge was ever-evolving, comprising conceptual, process, representational and metacognitive components. It also indicated that knowledge was integrated into knowledge structures within an individual's framework of knowledge, and that it was these that enabled learners to make sense of the world and to act upon it.

Teachers need to have **an understanding of both the nature of knowledge and of subject knowledge in their own discipline**. They need to know that knowledge is dynamic and integrative. This will help them to perceive why they need to help students to make connections among areas of knowledge wherever possible, through engaging them in tasks that demand that they make such links. It will also help them to see why students will need to focus on the concepts, processes, strategies, skills, systems, language and other representations involved in carrying out tasks, as well as needing to develop awarenesses about their own thinking and learning, and about how best to enhance these.

In order to have a clear conception of subject knowledge, teachers need to know:

- the range of purposes the subject may serve;
- the contexts in which it may be used;
- the processes of inquiry, thinking, problem-solving, creating, performing, judging and communicating that are associated with the learning and use of the subject;
- the products to which the purposeful use of the subject gives rise.

With this knowledge, teachers can develop purposeful contextualised tasks, which provide learners with the range of learning experiences they need.

The provision of a wide range of learning experiences

Teachers need to **provide a wide range of learning experiences** that will lead to the active construction of knowledge by each individual learner. As outlined earlier, the current conception of learning indicates that it is through task-centred learning that students learn best. Focuses on particular aspects of knowledge and processes are best provided within the context of the task, prior to engaging in it, or while or after doing so. Thus good teaching depends upon **the provision of a wide range of learning experiences** to fulfil the range of learning purposes set out in the learning targets. All of these will involve constructing and using knowledge, and some of these will focus on developing the metacognitive awarenesses that permit deeper understandings, and that facilitate both the deliberate choice of ways of going about things and the monitoring of performance as tasks are being carried out (Miller, Galanter and Pribram, 1960).

Supporting learners

Support may be provided within resources or by the teacher or by peers. Prior to a task being undertaken, support can be offered, for example, through providing assistance in how to look at a problem, through teaching particular items of knowledge or skill without which a task cannot be undertaken, or through raising awareness of what is likely to be involved through brainstorming techniques. In the course of doing tasks, support can be provided by hints or prompts or leading questions. After

completing tasks, support can be provided through feedback felt likely to be assimilable, and through awareness-raising which focuses on conscious understanding of systems and patterns underlying what has been done.

Another important form of support is emotional support. Students need encouragement to try out their ideas, make mistakes and learn from them. Teachers need to create a supportive environment, free of anxiety, where students feel that they will not lose face or be punished for exercising curiosity and creativity, or for experimenting. It is important not to stifle exploration through over-zealous continuous assessment and recording of information, which deters students from taking risks.

Responding to learner differences: Differentiation

Learners come to learning with different frameworks of knowledge and different capabilities as a result of their genetic make-up and the different experiences they have encountered. They have different strengths and weaknesses and they learn at different speeds. They have different interests and attitudes and may not all share the same preferred modes of learning. It is the role of the teacher, in so far as it is practicable, to know the particular background and profile of individual learners and to know how to **respond to learner differences** by providing them with appropriate learning experiences and levels of support.

It will be important to have resources suitable for individual or group learning. Schools should explore the idea of devoting perhaps one period a week per subject on a regular basis to individual learning, where learners may choose or negotiate what to do, either to build on strengths and interests or to address identified weaknesses. The school's resource centre with its bank of graded learning resources should contain materials to be used in this way.

The setting up of a resource centre in the school, to which students have access, and where they can find a range of multi-media software and hardware devoted to individual learning, is an important way of responding to learner differences, and of encouraging learners to take more responsibility for their own learning. It will be remembered that lack of differentiation in teaching and resources was one of the major problems to which the TOC initiative should respond.

Most teaching, however, is still likely to be done on a class or group basis, and it is therefore important to devise strategies to provide variable levels of support to different students on common tasks, and to use holistic learning tasks which lead naturally to different outcomes from different students on the same material.

It is vital that those in authority plan greater reductions in class size which make it possible for teachers to interact more with students, to encourage more group and individual learning, and to provide more attention to individuals and groups. This demands better provision of the sort of resources and state-of-the-art technology that release the teacher from time to time from whole class teaching to respond to the needs of individuals and groups.

The Education Department and teacher education institutions need to set up networks of schools and teachers to undertake classroom research and to spread good teaching and learning practices, particularly in the area of differentiation.

Assessing student learning

Assessing student learning is an integral part of learning. It involves making considered judgements to determine how individual students are progressing towards learning targets, and to identify strengths, weaknesses and areas for improvement, in order to come up with ways of assisting them to make further progress.

Much criticism has been levelled against the use of norm-referenced assessment principles in those phases of an education system where selection is no longer necessary due to the provision of comprehensive and free education for all. Where selection no longer plays a dominant role, as in Hong Kong from Kindergarten through to Secondary 4, the fundamental purpose of assessment shifts to that of monitoring the learning progress of all students against progressive standards and using the results to inform the teaching / learning process. One of the major problems in the Hong Kong education system, however, as highlighted in Chapter 2, is that this shift has not occurred, since most school assessment is still designed to rank students, and for superficial accountability, rather than to assess progress against standards and highlight strengths and weaknesses.

Standards-referenced assessment

Standards-referenced assessment means setting standards against which to measure learning progress. Setting an educational **standard** means producing a clearly defined statement which specifies what must be demonstrated to indicate that the standard has been met. In order to define a standard, there must be an explicit target(s), a description of what would constitute an "acceptable" performance in relation to the target(s), and a description of what qualities should have been displayed in what has been done. In the TOC initiative, standards of this sort are termed **bands of performance**, and the descriptions that are built into them embody the criteria against which progress in performance on major task-types is to be measured. Thus the sort of assessment that is promulgated through the TOC initiative is based on criterion-referencing principles, and is **standards-referenced**, with the standards set at progressive stages of development to capture developmental trends in learning.

Assessment as an integral part of the curriculum system

Criticism is frequently and justifiably levelled against assessment which does not support the rest of the curriculum, i.e. that does not assess what is important in learning, but focuses instead on atomistic bits of information and part-skills, because they can be assessed "reliably", since the questions asked have short, and often right or wrong, answers. Where a constructivist and holistic view of learning is adopted, as in the TOC initiative, assessment is not a matter of eliciting short answers. According to Carlson (1989 : 91-92), it should move towards:

- an emphasis on production, creation and performance, rather than the selection of one right answer from a set of possibilities;
- a focus on integration by the use of intentionally complex assessment tasks which are multi-dimensional, multi-sensory, and multi-modal in form;
- the use of fewer tasks of greater breadth and depth;
- the use of tasks which involve speech and writing to communicate learning in all subjects;

- the use of group tasks to assess capabilities to interact, negotiate and deal with different opinions to achieve common ends;

- the use of tasks involving novel situations.

As the Education Commission Report No. 4 (Education Commission 1990) noted, assessment may exert a positive or negative effect on teaching and learning. Where assessment is aligned with the rest of the curriculum, assessment is likely to exert a positive influence; on the other hand, where assessment is at odds with this, then it is likely to exert a distorting influence. We must assess what is important in learning rather than making important what is easily assessable. Table 8 below summarizes some of the implications for assessment of a target-oriented curriculum, such as the one proposed in this *Framework*.

Table 8: Characteristics of a target-oriented curriculum and implications for assessment

Characteristic	Implications for assessment
1. The curriculum is holistic and dynamic and is designed to promote an ever-improving capability to learn and use knowledge	• assessment should require that students construct knowledge and express it verbally in speech and/ or writing • assessment should support the use of knowledge in problem-solving and other task-types • assessment should require students to draw upon all components of their framework of knowledge (conceptual, process, representational and metacognitive) • assessment needs to be contextualised i.e. involve knowledge set in a context of use, rather than call for a display of decontextualised facts or skills • assessment needs to support students in taking responsibility, for example, by monitoring their own work and refining this in order to demonstrate their best performance
2. The curriculum is based on progression in learning and using knowledge	• assessment needs to be designed in line with students' stage of development • assessment needs to cater for the individual, allowing students to make progress at their own best speed. It should enable students to see and value the `distance travelled' in working towards targets
3. Learning targets provide the essential purpose of learning in subjects, curriculum areas and the curriculum as a whole	• the learning targets should be a focus for assessment • assessment involves eliciting performance at all levels of the curriculum on the full range of learning targets.
4. Learning tasks provide the means through which students work towards the learning targets; Learning tasks are supported by learning focuses.	• holistic tasks have a central role in the assessment system as a means of eliciting student performance • formative assessment may also involve specific assessment focuses

Assessing capability through performance

Performance provides visible evidence of student capability, i.e. what students can do on the basis of what they know. Bands of performance are based on a conception of progression and enable the developing capabilities of individual students to be charted along a continuum of ever-improving performance.

Assessment plan

In order to assess learning through performance at the levels of the curriculum as a whole, the curriculum areas and the various subjects, it is necessary to elaborate an assessment plan. An **assessment plan** fulfils a number of assessment purposes and embodies forms of assessment which fulfil them. Additionally, an assessment plan sets out the way in which judgements about student performance and progress in learning are to be made, and the way in which these are to be reported and used. Each of these is considered in turn.

Purposes of assessment: formative and summative

Formative assessment is the ongoing process of judging and communicating progress in learning. In formative assessment, teachers monitor whether students are learning effectively and whether they are able to use their knowledge and understanding. Formative assessment is designed to monitor the process by which students are learning and the products of their learning.

For formative assessment, teachers can use a range of forms of assessment such as informal observation or more formal end of unit tests. **Formative assessment** is devised to provide students with quick feedback on their learning and progress. For students, evidence of progress and recognition of this by others can be an important motivating factor and an incentive to further learning. In addition, formative assessment provides information for teachers on the basis of which they refine their plans for teaching so as to cater more effectively for the particular needs of individual students.

Formative assessment should be kept private between teacher and learner, in order to encourage learners to try things out and learn through their mistakes in an environment free of pressure. Where continuous assessment has been used, so that everything the student does is used as evidence towards a final grade or mark, the pressure on students has been shown to be unhealthy. It is strongly recommended that only those infrequent assessments that are summative in nature, and only those pieces of work that students select to be kept in a portfolio to provide evidence of what they have achieved should be used for publicly reporting on progress. The students should know that formative assessment and the information that derives from this will not be taken into account in working out final marks, grades, or bands of performance.

Summative assessment is the periodic process of judging progress towards targets. Summative assessment is designed to provide as comprehensive and rich a description of performance as is practicable. The major summative assessment instrument is an end-of-period, end-of-year or end-of-Key-Stage assessment. Students should know well in advance when a summative assessment is to take place and should also be aware that the results of this will be taken into acount when reporting on progress.

Summative assessment also serves formative purposes and provides information for future teaching and learning.

Internal and external assessment

Internal assessment refers to forms of assessment for which teachers and schools have responsibility. **External assessment** refers to those forms of assessment for which official agencies outside schools have responsibility. While internal assessment is both formative and summative, external assessment should always be summative.

Currently there is a world-wide shift towards assessments which are internally set and marked, supported by processes of peer and consensus moderation. This acknowledges the central role and responsibility of the teacher in teaching, learning and assessing, and the fact that there are many aspects of student learning which are, by their very nature, not amenable to short one-off external assessments.

In any high-stakes end-of-Key Stage summative assessment, it is best to have a logical combination of internal and external components. The internal components should focus on tasks which are best assessed internally, i.e. the longer-term projects and more complex multi-dimensional tasks which seek information on the student's ability to use subject knowledge as a whole, or to engage in curriculum area or whole curriculum tasks. The external components should focus on some of the dimension tasks which are likely to be more amenable to the constraints of external assessment.

Assessment tasks

Student learning is monitored through eliciting performance on assessment tasks. **Assessment tasks** represent holistic instances of the purposeful, contextualised use of knowledge. Like learning tasks, assessment tasks engage the learners in interpreting the purpose and context of a task, in constructing a process through which to fulfil the purpose, and in producing a product(s). An example of an assessment task in mathematics for younger learners is given below.

Table 9: An example of an assessment task in mathematics for younger learners

Materials Required	Task
• Large box of raisins • Containers of different sizes • Balance • Calculator	1. Estimate the number of raisins in the box. 2. Use any of the materials to make a better estimate. 3. Check your estimate by different methods. 4. Record your results and give an oral account of your work.

(From: National Council of Teachers of Mathematics, 1989: 206))

Assessment tasks may be designed to assess learning at all levels of the target system: the curriculum as a whole, curriculum areas, subjects, dimensions and within-dimensions. Assessment at each phase of schooling should include tasks which cover the range of learning targets. It is necessary in every subject to ensure coverage of the broad task-types set out for each. Ideally, it is also important from time to time to include assessment tasks which assess the task-types for particular curriculum areas and for the curriculum as a whole, in order to assess the students' capability in putting knowledge across the curriculum together in useful ways.

Assessment focuses

As well as having holistic assessment tasks to elicit performance, it will be necessary in internal formative assessment to focus on discrete aspects of learning. This is best done through **assessment focuses** within the context of a broader assessment task. These may be concerned with understanding particular ideas; recall of important information; the use of particular strategies, skills and sub-skills; knowledge of a particular descriptive or explanatory system; ability to state or apply a rule or theory; or other areas of knowledge, skill and awareness that may need to be focused upon.

The grading of assessment tasks

The grading of assessment tasks can be undertaken on the basis of the same characteristics as apply in the grading of learning tasks, i.e.:

- extendedness;
- inherent complexity;
- demand in terms of previous knowledge and level of application;
- support level provided.

A bank of graded assessment tasks calibrated to the bands of performance

To assist teachers to set appropriate summative assessments, a **bank of graded assessment tasks** will be required. The same classification system as is used for learning resources should be used for the assessment tasks, i.e. they should be classified in terms of Key Stage, band(s) of performance, learning target and dimension and other pertinent categories. Teachers should be encouraged not only to draw upon tasks in the bank, but to contribute their own to it, so that it grows to offer an ever-wider choice of tasks. The Telenex project in the Department of Curriculum Studies in the University of Hong Kong might be asked to assist in the development of this bank.

The assessment tasks in the bank should be pre-tested and calibrated to the bands of performance, so that teachers can tailor assessment to the range of progress levels among the students in their class. The assessment tasks should have clearly set out marking guidelines to assist teachers in their judgements.

Differentiation in assessment

As with learning tasks, assessment tasks should respond to learner differences. Since ranking students in a class or in a year group on common assessment tasks is no longer the main function of assessment between Primary 1 and Secondary 4, except at Primary 6 for SSPA purposes, there is a need to explore **differentiation in assessment** to ensure that individual students are assessed at an appropriate level. Probably by Primary 4, and certainly by Secondary 1, there will be some need for differentiation in assessment among students in the same class or in the same year group. This can be achieved in a number of ways.

One overall assessment may contain a sequence of tasks graded in difficulty from the more easy to the more complex, and different students may be asked to start in different places in the sequence to reflect their level of progress, or all students may be told to start at the beginning of the test and to work through until they can do no more. Alternatively a test can be constructed in which each task to be completed has three or

four levels of "question". Students may either choose which level to work at, or be encouraged to answer each level of question for each task in the test to ascertain the level at which they start to be unable to operate effectively. A further possibility is to construct completely separate or overlapping tests at however many levels are considered appropriate to cover the range of students concerned. Each of these possibilities will have merits in different situations according to the purpose of the assessment.

The calibration of assessment tasks to bands of performance provides a useful way of indicating which tasks may be appropriate for which students, in cases where the current band of performance at which each student is operating is known, but as with the attempt to choose learning tasks appropriate to the level of individual students, there are many factors that come into play, such as previous knowledge of the task or interest in the topic, which may make it difficult to guarantee the appropriacy of tasks to students. For this reason it may be more appropriate to construct multi-dimensional open-ended assessment tasks which reflect the essential in learning, and which allow for differentiation in performance.

Biggs and Collis (1982), and Biggs et al (1989) highlight that progress in learning is qualitative in terms of what is learned and how it is structured. Tasks can deliberately be constructed to reveal where students are in their learning in terms of the structure of the observed learning outcomes (SOLO) in their performances. They have developed a SOLO taxonomy to identify the stage at which a student is operating in a particular subject on a particular task-type and topic. The stages are as follows:

- prestructural, implying that the student is unable to tackle the task in any structured way;
- unistructural, implying that the student is able to seize on only one aspect of a task properly;
- multistructural, implying that the student is able to pick out several aspects but in an as yet largely unrelated way;
- relational, implying that the student has been able to relate the aspects together and make a whole;
- extended abstract, implying that the whole has been generalised to a higher level of abstraction.

For Biggs and Collis, qualitative stages in learning have to do with the extent to which students are able to interpret, structure and relate information both within itself and to form patterns and systems which connect with existing knowledge structures. The structure of the students' observed learning outcomes, as revealed in performance, can serve useful formative purposes, indicating where students are in their learning on the task-type and topic in question, in order to focus teaching and learning on getting them to the next stage.

Characteristics of good assessment : authenticity, validity, reliability, positive impact on teaching and learning, and practicality

Authenticity is related to the purposes for which a subject is being learnt and the contexts in which subject knowledge operates. **An authentic assessment task** simulates or reflects a real purpose for using subject knowledge, and a real context in which that knowledge may have to be used. **Contextual authenticity** has to do with

the authenticity of the situation, of the themes and topics to be handled within it, and of the role to be played by the students in interaction with the text, or resources provided or with others. A necessary self-discipline that examiners in all subjects need to impose on themselves is to think through the purpose and context of what they are asking students to do in assessment, and ensure that both are present and authentic.

Validity is concerned with the extent to which an assessment is measuring what it is supposed to be measuring, i.e. the purposeful, contextualised use of a framework of knowledge embodying ideas, processes, awarenesses and language or other representation. **Valid assessment tasks** should normally require students to construct their own responses instead of simply choosing a correct answer. Validity is the most crucial of all the characteristics of good assessment, since if one is not assessing what one is supposed to be assessing, then all the other characteristics become irrelevant.

Assessment is **reliable** where a marking scheme leads to inter-marker consistency in the award of marks, grades or bands of performance. In order to ensure as high a level of reliability as we can achieve, it is proposed for the TOC initiative that there should be:

- common learning targets;
- common assessment task-types with common criteria from which to derive more specific criteria to judge performance on more specific tasks;
- examples of student performance to illuminate each band of performance;
- common bands of performance against which to assess student progress;
- a common bank of assessment tasks which have been pre-tested and calibrated to the bands of performance;
- moderation procedures to be discussed on page 62.

The reliability of assessment procedures has always been an area of major concern to Examination Boards, and a great deal of effort has been put into developing forms of assessment which ensure reliability. Validity, however, has often played a minor role. Objective tests, in which each item has one correct answer, lead to reliability in marking, while forms of assessment which involve an element of marker-judgement, e.g. open-ended questions and essays, are likely to lead to less reliability. Because of this, many Examinations Boards, including the Hong Kong Examinations Authority, have adopted forms of assessment which can be objectively marked, for example multiple-choice questions or single answer responses. This has had a distorting effect on teaching and learning, since many of the most important aspects of student learning are not amenable to objective testing. Tasks involving designing, creating, imagining or problem-solving do not have "correct answers". Judging the merit of student performance on such tasks must necessarily involve marker judgement. Furthermore, multiple-choice questions fail to assess communication as an integral part of developing and using knowledge. Thus, while the narrowing down of what is assessed to areas which can be objectively measured may be reliable, it serves no useful purpose if it fails to ensure validity and distorts classroom teaching and learning. Assessment must be valid if it is to support effective learning, and it needs to achieve as high a level of reliability as it can. Examination Boards around the world are now making great efforts to include school-based assessment of projects, and more attention to the assessment of problem-solving and other holistic task-types, in order to ensure that their assessments are authentic and valid. They are also searching for ways to reach

the highest level of reliability possible within this (International Association for Educational Assessment 1994). If progress is to be made in improving the quality of learning in Hong Kong, the Hong Kong Examinations Authority will also have to ensure greater authenticity and validity in their assessments.

A positive impact on teaching and learning is guaranteed where assessment is in line with the rest of the curriculum, as is proposed in this *Framework*. It is also expected that the openness and explicitness of the sort of assessment proposed will have a positive impact on students, teachers, parents and the general public.

Practicality is concerned with the extent to which teachers and examiners can, with support, put whatever assessment and reporting procedures have been devised into practice. Factors such as adequacy of resources, time and teacher know-how are germane here. It is essential not to turn teachers into assessment "gradgrinds", by making excessive demands for the more public aspects of assessment and reporting. Assessment must fit into the teaching and learning process without disrupting it. This means restricting summative assessment to the essential aspects of learning captured in holistic learning targets and ensuring that it is only done once or twice a year. One of the major lessons to be learned from experiences in other countries of introducing standards-related assessment based on criterion-referencing principles is that great efforts have to be made to make it as practical as possible before introducing it.

Criteria for judging performance

Criteria for judging performance are properties or characteristics by which performance can be judged. They describe critical features of performance on a particular task. Criteria will differ according to the nature of the task.

There are generic criteria which would seem to apply to all task-types in all subjects. These need to be particularised for the various subject task-types, and then made even more precise for each particular task.

Generic criteria that seem to apply to all task-types can perhaps be divided into one global criterion and several componential criteria. The global criterion that has to be fulfilled can be expressed in the question:

- Does the product, i.e. what the student has done, fit the purpose and context set in the task?

The componential criteria can be summarised in the following questions :

- how well were the ideas chosen, connected, and organised?
- how well were the processes, strategies and skills chosen, organized and exercised in the process of completing the task?
- how well was the thinking communicated? How well was it connected, organized and presented in language and other appropriate representational forms?

Different task-types and tasks will call for different combinations and weightings among the criteria. In problem-solving, for example, one may wish to know to what extent the candidate has:

- analysed and formulated the problem;

- employed appropriate strategies;
- come up with a workable solution;
- verified the solution in some way;
- organised and presented the thinking in an appropriate form;
- explained and justified the process used.

Other qualities have also to be embodied in criteria, such as appropriacy, clarity, coherence, beauty, accuracy or relevance.

Bands of performance

Global and componential criteria are built into **bands of performance**. Bands of performance are broad descriptions of typical growth, embodying developmental trends in learning. They represent a long-term map of progress in performance set out as a progressive series of standards in the dimensions of a subject, in the integrative use of the subject, in curriculum areas and in the curriculum as a whole.

Bands of performance should describe:

- what students are able to do, and to what extent and in what contexts;
- how and how well they do it.

The purpose of bands of performance is to provide a broad map with significant markers of progress along the continuum of students' learning. They provide a set of common, shared standards against which to monitor and judge student performance over time. Such a progressive picture, though necessarily broad, highlights the significance of progress in learning across phases of schooling. The distribution of bands of performance among Key Stages is postulated to be as follows:

Table 10: The distribution of bands of performance among Key Stages

				8
				7
Expected range			6	6
of bands of			5	5
performance		4	4	4
		3	3	
	2	2		
	1			
	on the way to 1			
	Key Stage 1	Key Stage 2	Key stage 3	Key Stage 4

The above diagram demonstrates that the expected range of performance among students is expected to increase at each Key stage. It also acknowledges the fact that there are different rates of progress through the bands of performance among students. For example, it is possible that there are students in Key Stage 4, (i.e. Secondary 4 and 5) who have only just reached Band of Performance 4, which is hypothesized as the performance of the best students in Key Stage 2 (i.e. Primary 4 - 6). The choice of 8

the need to be able to indicate progress for the full range of learners on the one hand, and the practical difficulties involved in finding clear enough statements to differentiate between any more than eight levels of progress in performance for the age level concerned on the other.

Descriptions in the bands of performance are intended to help teachers and other users to identify evidence of progress, areas of strength and areas needing improvement. The descriptions draw attention to particular aspects of progress which are significant along the progress continuum. Teachers can use the descriptions in the bands of performance as a resource for interpreting and communicating student performance. Through processes of peer and consensus moderation they can be used as a common reference for achieving consistency of judgement within and across schools. At the same time, the bands of performance allow the Education Department to assemble and interpret the broad information it needs for the purposes of overall monitoring, evaluation and accountability. Table 11 provides an example of a band of performance description for Band of Performance 3 in the Interpersonal Dimension for English. This involves conversation and correspondence.

Table 11: Example of a band of performance description

Band of performance 3: Interpersonal Dimension:

PROCEDURE	PRODUCT	EXAMPLES
Conversation Learners: • initiate conversation in contexts which they have previously experienced • listen actively to understand the information provided by their partner/ teacher • rely strongly on key words to gain understanding • convey their own ideas and feelings in short simple statements in response to questions • are able to ask for repetition, but generally they indicate non-comprehension by pausing or repeating the teacher's question • attempt to take longer turns, using guiding questions, but not always successfully **Correspondence** Learners are able to: • respond to questions and requests made by their correspondent • distinguish different types of correspondence • use formats or models provided to draft their own • write in simple sentences with some attempt to organize ideas, though not necessarily in paragraphs or accurately • include additional information, e.g. give reasons when prompted to do so • revise and edit their first draft, with teacher support, where their attention is drawn to punctuation, spelling, verb forms, sentence structure, use of adjectives, etc • use dictionaries to check spellings	Learners are able to: • respond in conversation with their teacher • participate in conversation with peers in face-to-face situations or role play • write informal correspondence to people in their immediate environment and to imaginary characters. Learners' language comprises: • predictable or familiar language within known topics and contexts • learned patterns and formulae • short simple statements and questions • partial structures • some inaccuracies; however, it is generally possible to discern meaning Learners are also: • beginning to organise their ideas and structure their conversations and correspondence to some extent • they are likely to rely on support to do so • able to use simple connectives and time markers	letters, cards, invitations, messages Hello, my name is ... I'm pleased to meet you. Hello, may I speak to ... Hold on please. Dear ... I hope to hear from you soon Mary [is] likes TV games and our teachers [are] like reading very much. and, but, because, today, yesterday, in the morning

Bands of performance, however, provide a picture of typical growth, and not the growth of any individual student. Individual students are likely to perform differently within different aspects of capability at any particular point in time. Similarly, individual students are likely to progress at different rates in different phases of schooling. They will not necessarily make steady progress. An accelerated burst may well be followed by a plateau or even an apparent regression. In using bands of performance, teachers are asked to determine the band which best matches the individual's performance. They must supplement this by providing descriptive statements to highlight individual features in development, and to include information on attitudes and learning approach.

A number of issues have been raised in relation to the development of bands of performance (Brindley 1994). These relate in particular to the paucity of evidence from research on long-term progression of student performance, and to the difficulty of specifying progressive standards with sufficient precision to distinguish clearly between levels. Yet, despite these difficulties, a set of progressive standards describing typical growth in performance would seem to remain an essential resource for teachers. This should encapsulate the best that is currently known about progress in performance, and be subject to constant longitudinal research and refinement.

Peer and consensus moderation

In making judgements of student performance in systems which place a strong emphasis on the teacher's role and on authentic and valid assessment, it is important to devise a means for ensuring as high a level of reliability in teacher judgement as is possible. **Moderation** has proved to be the most successful means for maximising consistency in teacher judgement.

Two forms of moderation may be found useful. **Peer moderation** involves teachers working as external moderators with other teachers. Schools may be paired or put into groups. Teachers in one school act as external moderators to look at the marking of teachers in another school, so that all teachers involved can work towards a common understanding and interpretation of the criteria and bands of performance.

Consensus moderation involves teachers coming together at meetings to compare, exchange and discuss work samples and reach consensus on how to apply criteria and how to interpret bands of performance. While this is time-consuming and expensive, it is the most effective way of assisting teachers to develop the capability to judge performance reliably.

Reporting: Profiles of performance and records of achievement

As set out above, only the information gathered from periodic summative assessments should be included in any report on a student's learning progress. Data obtained from ongoing formative assessment should remain private between teacher and learner, in order to encourage learners to try things out and explore, free from the pressure they would feel if what they did was recorded and reported. It is data obtained from summative assessments, where students know in advance that they are to be assessed, that provide the basis for reporting learning progress.

The most effective means of reporting on students' overall performance is through a **profile of performance** (Broadfoot 1987), which indicates progress in relation to targets, as well as strengths and weaknesses. A **profile of performance** is a record of student progress through profile components. The **profile components** suggested for TOC are:

- each dimension in each subject (of which there should not be more than three or four);
- the subject as a whole;
- each curriculum area;
- the curriculum as a whole.

It is important to keep the profile components at dimension level to a minimum so that they are manageable. The use of the subject as a whole, assessed through a broad task or project, remains a priority profile component in every subject at every phase of schooling. Profiles reflect the fact that students may well perform differently in different dimensions of each subject, as well as at different levels across subjects.

It has been a common practice to aggregate across different dimensions of a subject in order to provide one overall mark or grade for each student for each subject. While this is tidy and apparently simple to interpret, it is not valid, since it is not showing what it is purporting to show and it may well conceal more than it reveals. There is in fact no logical means for adding a student's different capabilities together across different dimensions of a subject to form a quantitative aggregate. There is no requirement to do so in the TOC initiative, other than at Primary 6 for SSPA purposes until a more equitable and educationally more soundly-based way is found of organising transfer from Primary to Secondary education. For other year levels, the rich information provided by the profile without aggregation provides students, parents, teachers and others with the information they need for their various purposes.

In the profile of performance it is important to include additional **comments related to the particularities of each individual's learning and performance**, and for **comments on attitudes and approach to learning.**

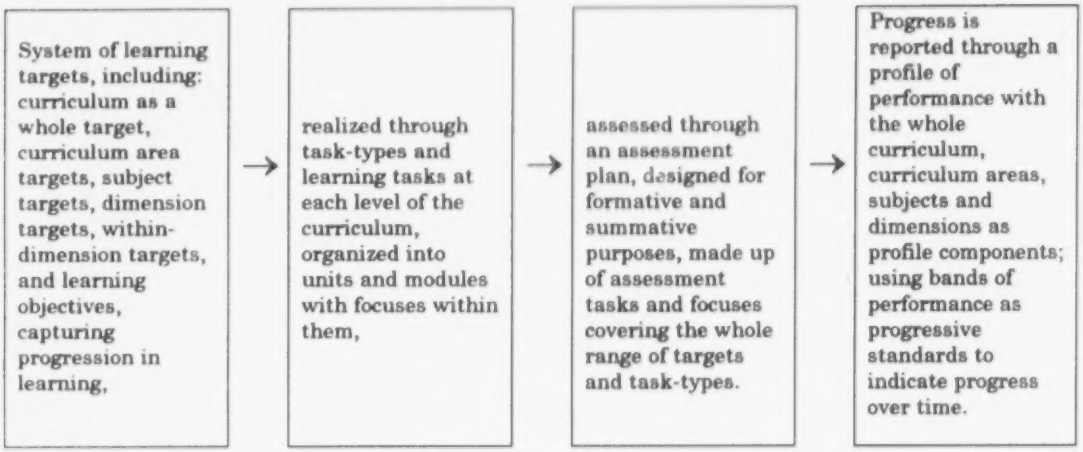
Profiles of performance for each student should be kept in a cumulative **Record of Achievement,** which accompanies the student from year to year and from school to school.

A further means of gathering useful data on student performance is to have a **portfolio** for each student in which the student chooses which work samples to include, and annotates these to indicate why they have been included. Portfolios become an important means for providing evidence of student performance over time to Examination Boards, for example, who may require such evidence when an appeal is made against what is considered by teacher and student to be a lower examination grade than is merited (Long 1993).

Taken together, bands of performance and profiles of performance reflect the fact that students rise to different levels at different speeds, and may perform differently in different dimensions of each subject, as well as at different levels across subjects. This challenges the deeply-ingrained but unhelpful notion prevalent in Hong Kong that there is an absolute standard or norm that should apply to all students at a certain age. It embraces the reality of differentiated capabilities in different areas of the curriculum. It seeks to encourage **all** students with their differing speeds of learning to learn as fast and as well as they can, and it provides the means for celebrating individual progress, however large or small.

In brief, assessment and reporting are part of the curriculum, as outlined in Figure 4 overleaf.

Figure 4: Assessment and reporting as part of the curriculum


System of learning targets, including: curriculum as a whole target, curriculum area targets, subject targets, dimension targets, within-dimension targets, and learning objectives, capturing progression in learning,
realized through task-types and learning tasks at each level of the curriculum, organized into units and modules with focuses within them,
assessed through an assessment plan, designed for formative and summative purposes, made up of assessment tasks and focuses covering the whole range of targets and task-types.
Progress is reported through a profile of performance with the whole curriculum, curriculum areas, subjects and dimensions as profile components; using bands of performance as progressive standards to indicate progress over time.

Information yielded by assessment

The assessment plan should try to cater primarily for the information needs of students, teachers and parents. Where Government requires more information on schools and on the student population in general than can be obtained through periodic summative assessment, then light matrix-sampling techniques that do not involve teachers and students in over-assessment, and that do not intrude into teaching and learning time, should be used.

Value-added achievement

Where Government decides to publish assessment information about particular schools, emphasis needs to be placed on **value-added achievement**, i.e. the present achievement of students in relation to where they were when they entered the school, or where they were at the last Key Stage. This is more revealing than presenting league tables of schools in terms of examination achievements, where those with the best intake generally come top. When value-added achievement is examined, it is often discovered that some of the high-ranking schools in terms of final examination achievements may not be so high in terms of value-added achievement, while others lower down on the basis of final examination results may rank higher in terms of this.

There is also the issue of **confidentiality of information**. Some assessment information will need to remain confidential and it is important that rules respecting confidentiality be drawn up.

Evaluating the effectiveness of curriculum renewal initiatives

It is essential in all educational ventures, such as Hong Kong's TOC initiative, to know where one is going, to devise a means and create the resources to get there, based on the best knowledge available and on the realities of the context, to try out the means and resources in the classroom, to monitor what occurs, and to evaluate the whole endeavour and the various parts of it, in order to improve what has been planned, what has been created and what is being done. **Evaluation** is concerned with judging the effectiveness of a curriculum initiative and of its various parts with a view to improving them. In order to do this we require standards against which to measure effectiveness.

Standards

It is through establishing **standards** which capture the essence of what is desired, and through matching achievement and progress against these, that the quality or effectiveness of an initiative such as TOC can best be evaluated.

It is important to note in passing that it is a misuse of the term "standards" to talk about educational standards rising or falling, since it not the standards that rise or fall but student performance against them.

Even when standards are devised, against which to measure performance, it is seldom possible to make comparisons over the years between the educational achievements of one year's cohort as opposed to another, since the standards themselves must evolve in response to shifts in contextual requirements and in conceptual understandings of what should be taught and assessed. It only really makes sense, therefore, to assess performance against the requirements of the time, as set out in the standards of the time.

The overall purpose of the TOC initiative is to raise the quality of individual learning, and it has been argued that this can only be done through a concerted effort in four dimensions:

- to improve the capability of teachers and other contributors to the curriculum renewal process;
- to improve the quality of the curriculum;
- to improve the quality of the learning environment both in and out of school;
- to improve public understanding of learning.

It will therefore be necessary to set targets and criteria for the overall purpose of raising the quality of individual learning as a whole, and embody these in **a series of progressive standards** against which to evaluate the progress of the TOC initiative as a whole. It will also be necessary to set targets and criteria for each of the four dimensions set out above and embody these in a **series of progressive standards** against which to measure progress in each.

Finally it will be necessary to set out standards for activities within the four dimensions against which one can measure, for example, whether the teacher development programme, the learning resources, the bank of assessment tasks or other aspects are working effectively. In an inclusive curriculum renewal process, all contributors need to assist in working out standards against which to judge the effectiveness of their contribution towards the whole.

Standards are devised to assure quality. Standards must therefore embody criteria derived from a conception of what constitutes quality.

Quality

The overall aim of the TOC initiative in Hong Kong is to improve the quality of individual learning. It is necessary, therefore, to attempt to set out what constitutes quality in learning.

Quality is a complex concept and agreement as to what constitutes quality in learning is not easy to bring about. Perceptions as to what constitutes quality are determined from different perspectives by different contributors to the education system, and they arise from different ideological viewpoints. For students, the quality of the learning they experience will be judged in terms of the extent to which it brings about happiness and a healthy self-image, and leads to examination success as well as to their social and emotional fulfilment. For parents, quality is almost always seen in terms of whether the education of their children leads to good qualifications and career prospects. For employers, quality is judged in terms of the needs of the workplace. For Government, the quality of an education system will be determined on the basis of broad economic and socio-political criteria. Among academics there is often a tendency to wish to hide behind the implicit traditions of their disciplines and to resist attempts to make what constitutes quality too explicit. Thus, for example, Pring (1992) sees more merit in empowering inspectors, academics and teachers to judge quality on the basis of their authority as long-established members of their academic communities, rather than attempting to make what constitutes quality explicit and risk trivialising or distorting it. There are, then, differences of view as to what may be meant by quality in education according to who is defining it, and there are problems in spelling out what is meant by the term "quality" without trivialising it. Nevertheless, despite the difficulties and dangers, it is essential to attempt to describe the characteristics of quality in learning, in order to derive criteria from them against which to measure the extent to which the TOC initiative is successful, and in order to bring improvements to it.

There are perhaps three broad education ideologies at work in the determination of what constitutes quality in learning (Skilbeck 1982, Clark 1987). The first of these sees quality as inherent in the traditions of subject disciplines and in what are perceived to be the higher manifestations of culture in a community. On this view the quality of an educational initiative is to be judged in terms of the extent to which it inculcates the traditions of wisdom and excellence that have already been established, and takes these forward. Within this value-system it is largely academics and other custodians of excellence who determine what constitutes quality. A second value-system, which is currently in the ascendant, sees quality in terms of fitness for the requirements of future economic prosperity and social progress, the parameters and shape of which are determined by Governments. A third and important value-system is based on a learner-centred view of education which judges quality in terms of the extent to which learning has led to personal growth (Littlewood 1992).

There would seem no sensible reason for excluding any of these viewpoints in a definition of quality in learning. On the contrary the aim should be to establish a wide enough framework of criteria to reconcile them all (Clark 1987). Tentatively, therefore, the following operational definition of what constitutes quality in learning is put forward:

Quality in learning will be present when:

- learners have developed the appropriate knowledge and capabilities to enter the various academic and vocational communities to which they aspire, and are thus able to take part effectively in the sort of investigating, thinking, knowing, communicating, problem-solving, evaluating and critical reflection appropriate to each of them;

- learners' knowledge and capabilities fit the requirements of the community and world that they live in and provide them with the means to improve their own and the community's quality of life;

- learners are enabled to develop their intellectual, physical, social, emotional, artistic, moral and spiritual capabilities in line with their own individual characteristics and preferences.

A fourth social-critical value-system would add another criterion to the above, namely that the quality of an education system should also be judged in terms of the extent to which it brings about an equitable spread of learning to all, irrespective of origin and background, and, as a consequence of this, a move towards a more equitable society, and, in a wider international context, a more equitable world. The TOC initiative needs to be evaluated from this perspective as well.

These four aspects of what constitutes quality in education and learning should be embodied in the learning targets, bands of performance, and in the standards against which the TOC initiative is to be judged.

Multiple perspectives and sources of information

Given that there are different perspectives on quality, a complete evaluation picture should involve data collection from several sources. For example, in an evaluation of a particular classroom teaching strategy it is helpful to obtain data from the teacher's perspective, from the students', and if possible from a neutral observer's. When evaluating this *Framework* for example, it will be important to obtain data from a wide range of users, such as curriculum developers, materials writers, examiners, teachers, school principals and teacher educators, each of whom will judge the *Framework* and provide feedback on it from a rather different perspective.

Developing an evaluation plan

An **evaluation plan** should be developed by the Education Department, with the assistance of experts, for monitoring and evaluating the effectiveness of the TOC initiative as a whole and in each of the four dimensions set out above. The **evaluation plan** should be concerned with setting standards and devising forms of evaluation to find out what progress is being made. The forms of evaluation should also be designed to elicit strengths and weaknesses in order through further curriculum renewal processes to build on the strengths and address the weaknesses. Evaluation should be concerned with qualitative and not just quantitative data and should therefore include illuminative evaluation techniques (Parlett and Hamilton 1972), with an emphasis on case studies, and not just large-scale perception surveys and questionnaires. It is as important, for example, to try to illuminate why a particular initiative is working or not working in one or two particular contexts, as to get an overall undifferentiated picture of how it seems to be working out on average in many contexts.

Quality has to be assured in all the various activities involved in curriculum renewal: in professional development through pre-service and in-service education and through teacher and whole school involvement, and in planning, resourcing, teaching for learning, learning itself and assessment. It is thus crucially important to recognise that all those involved in the curriculum renewal process form a team, and that each member of the team has to be responsible for the quality of the whole and for the quality of their part within it. In a very real sense the quality of the whole is only as good as the quality of the weakest element within it. An education system with poor resources and classes whose size does not facilitate individual learning or task-centred work, for example, is only as good as the resources and class-sizes will permit it to be. All phases of the education process are thus inextricably interlinked and equally important in quality asurance.

Not only will all the various resources created within the TOC initiative need to be evaluated and renewed, such as this *Framework*, the learning targets system, the learning resources plan and the assessment plan, but at classroom level the individual teacher will need to learn how to evaluate schemes of work, learning resources, learning and assessment tasks, teaching strategies and other instruments and resources in order to make improvements to these and to curriculum reality. One useful way of doing this is to employ action research methods (Kemmis and McTaggart 1982). This involves:

- identifying a problem or area of weakness;
- exploring the parameters of the problem or weakness to get as comprehensive a picture of its nature and of its possible origins as possible;
- searching out possible solutions (through reflection, through discussions with others and through reading);
- identifying a solution or solutions that seem to be worth trying out;
- drawing up a plan of action and resources for trying out the solution(s);
- trying it out;
- evaluating both the process and product with a view to bringing further improvements.

Having discussed each of the various activities involved in improving the capabilities of teachers and others and in improving the curriculum, it is now time to attempt to put the various activities together into overall plans to guide the TOC initiative.

3.4 Developing plans to improve the quality of learning through the TOC initiative

Developing an overall curriculum renewal plan for the TOC initiative at Education Department and school levels

It is crucial that the Education and Manpower Branch and the Education Department **develop an overall curriculum renewal plan for the TOC initiative,** embodying research, development, trialling, evaluation and review phases, and encompassing the four dimensions set out on page 65. Within this overall plan there should be :

- clear overall targets for the initiative as a whole, for each of the four dimensions, and for each of the major activities within each dimension;
- standards embodying criteria by which quality can be judged in the initiative as a whole, in each of the four dimensions, and in each major activity to be undertaken within each dimension;

- a professional development plan to improve the capability of teachers and others, involving pre-service education, induction support, in-service education and support, and in-school staff development;

- an inclusive curriculum renewal process plan to ensure teacher and whole school involvement and the involvement of other contributors in the phased development, trialling, evaluation and review of all ideas, processes and resources in the TOC initiative;

- plans to improve the quality of the curriculum. (N.B. These are described in more detail in the section below);

- a communication plan leading to an education and information programme to ensure that parents and the wider public develop an understanding about learning and about the TOC initiative, so that they can support students and contribute to improvements in the quality of learning;

- a plan for the improvement of the learning environment, encompassing the provision of a multi-media resource centre with a wide range of resources to all schools, state-of-the-art technology, effective and pleasant working facilities and spaces for teachers and students, a reduction in class sizes, a means to attract quality entrants to the teaching profession to ensure good staffing in all schools, together with encouragement to parents and the media to provide enriching learning experiences outside school;

- a research plan which would provide funding and direction for research into areas that require investigation;

- a resourcing plan to ensure that all the necessary manpower and resources are provided to enable the TOC initiative to be put into action;

- an evaluation plan for the TOC initiative as a whole.

From the Education Department's overall curriculum renewal plan, **schools should be asked to develop their own school curriculum renewal plan for the development of the TOC initiative.** This should take account of the particular circumstances of each school, and cover the same sort of parameters as the Education Department's overall plan.

The TOC coordinator in each school should be made responsible for the drawing up of such a plan with the support of the principal and other teachers, and with the professional support of a teacher educator/curriculum developer as district coordinator. School plans should be submitted to the Education Department to serve as the basis for departmental support and monitoring.

Developing plans to improve the curriculum at Education Department and school levels

It is essential for the Curriculum Development Institute **to develop a whole curriculum and curriculum areas plan** for the TOC initiative, based on this *Framework*, with the aid of curriculum experts, principals and teachers, to guide overall curriculum improvement work.

This should embody all the major concepts set out in the *Framework*, and provide:

- a picture of the most salient cross-curricular developmental trends envisaged from Primary 1 to Secondary 5;
- learning targets for the curriculum as a whole, and for each curriculum area;
- major cross-curricular and curriculum area themes, task-types, and representations;
- principles of learning, including the use of language for learning across the curriculum, and guidelines for teaching that focus on providing an enriching range of learning experiences, on methods of support to students in their learning, and on effective uses of language for learning across the curriculum;
- exemplar learning tasks for the curriculum as a whole and for each curriculum area;
- a learning resources plan;
- a plan for assessing student learning;
- a plan for evaluating curriculum improvement initiatives.

From the Curriculum Development Institute's whole curriculum and curriculum area plan, **it is crucial that schools also produce a whole curriculum and curriculum areas plan appropriate to their own context**. To elaborate this, principals should work closely with those with responsibility for the whole curriculum, and with panel chairpersons and teachers. There is a need for a **whole school approach** to many curriculum issues, such as learning task-types, homework, resourcing, assessment, the use of language for learning across the curriculum, values education, and counselling and guidance.

Developing subject plans

The Curriculum Development Institute must also create **subject plans** aligned with the whole curriculum and curriculum areas plan to set out subject learning from Primary 1 to Secondary 5. These should cover the same concepts as whole curriculum and curriculum area plans, but should be applied to each subject. This will provide a clear picture of the nature and scope of every subject in the curriculum.

Developing learning programmes

From the subject plan and the departmental whole curriculum and curriculum areas plan, curriculum development groups need **to develop learning programmes for each Key Stage of each subject** (or Programmes of Study as they have come to be called). A **learning programme** relates the subject plan to a time-frame of Key Stages.

Learning programmes should embody all the relevant *Framework* concepts, and therefore cover the same areas as set out for whole curriculum and curriculum areas plan.

Learning programmes at secondary level will have to take account of the medium of instruction in which they are to be delivered. Inevitably this will mean that the existing

"content" of subject learning programmes that are to be in the medium of English will have to be repaced to take account of the need to establish English in the lower secondary years as an effective medium for learning. This repacing will mean a considerable reduction in what should be covered in lower secondary with a gradual acceleration in Secondary 4 and 5 to end up with the same expected coverage as in Chinese-medium classes. If this is not done, and if the pace for subject content coverage in the two mediums is expected to be the same in each year level of lower secondary, it is unlikely that English will be established as an effective medium for learning. This will have an adverse long-term effect on both content learning and the students' capability to interpret and express it.

Developing a scheme of work for each subject at school level

All teachers involved in each subject at each year level should **develop a scheme of work** from the learning programme for each subject and the school's whole curriculum and curriculum areas plan. A **scheme of work** is a practical pedagogical resource which relates a subject learning programme and the school's whole curriculum plan to a time frame of one year within a Key Stage. Given the range of students in any year level grouping, the Scheme of Work needs to encompass the range of learning to match the needs of all students in the class or the year group. As with subject learning programmes coverage of subject "content" and teaching and learning guidelines in schemes of work will have to take into account the medium in which they are to be delivered.

A scheme of work should comprise:

- learning targets at all levels of the curriculum and learning objectives for the year level;
- an outline of the framework of subject knowledge (conceptual, process, representational, metacognitive) that is to be constructed during the year;
- the modules and units to be worked through;
- a learning resources plan, including a focus on independent study resources;
- guidelines on teaching for individual learning, based on learning principles within the subject drawn from general learning principles. These must include effective ways of using whichever medium is to be used for learning;
- Assessment plan for the year level;
- Evaluation plan for the whole scheme of work

A scheme of work is an amalgam of modules, some sequenced, some running right through the year, and some free-standing for inclusion at an appropriate time (e.g. a project).

A well-developed scheme of work should not be regarded as something that is inflexible. It should be modified in the light of how it works in the classroom, and in response to the changing needs and interests of the students for whom it has been prepared.

Table 12 shows a number of curriculum plans and those who contribute to their development at Education Department and school levels.

Table 12: Curriculum plans and those who contribute to their development at Education Department and school levels

CURRICULUM	EDUCATION DEPARTMENT LEVEL		SCHOOL LEVEL	
	Plans	Contributors	Plans	Contributors
Whole Curriculum and Curriculum Areas	Curriculum Development Institute's Whole Curriculum and Curriculum Areas Plan	Those with Whole Curriculum responsibilities + "Experts" + Principals and Panel Chairpersons	School's Whole Curriculum and Curriculum Areas Plan	Principals, Panel Chairpersons and Teachers + District Coordinators
Subjects	Subject Plans and Learning Programmes	Those with Subject responsibilities + "Experts" + Principals and Teachers	Schemes of Work for each Subject	Subject Panel Chairpersons and Teachers

Evaluating plans, learning programmes and schemes of work

It is necessary **to evaluate plans, learning programmes and schemes of work** in terms of design, and more importantly in terms of whether they have been found effective in use.

In terms of design, criteria can be embodied in questions such as:

- Does the plan / programme embody a sound conception of knowledge, learning and progression?
- Are all important concepts in the *Framework* covered?
- Is the content of the plan / programme coherent within itself and with other plans?
- Does the plan embody continuity in progression?

In order to evaluate the plan's effectiveness in use, data should be obtained from different users from their own perspectives, using criteria embedded in questions such as:

- Did the plan / programme provide you with a clear picture of where you were going and what you were being asked to do?

- Did the plan / programme help in the selection, adaptation and creation of a rich range of resources and learning experiences?

In summary, plans need to embody all the various concepts and processes set out in the *Framework,* from learning targets through learning tasks, resources and assessment to the means to evaluate and renew the plan itself. They must be based on the contextual and conceptual considerations set out in Chapter 2. They take time to elaborate but are an important means to ensure coherence, consistency and continuity through the whole curriculum renewal process. They must remain flexible, subject to revision in the light of experience, new contextual requirements and new knowledge.

In the final Chapter, we discuss the use of the *Framework* and some of the issues that will need to be addressed in the management of the TOC initiative.

4 Managing the TOC Initiative : Putting the *Framework* into Action

4.1 Use of the *Framework*

The *Framework* in the previous Chapter has been elaborated to assist all those engaged in target-oriented curriculum renewal. Contributors to curriculum renewal such as researchers, policy-makers, curriculum developers, teachers, examiners, teacher educators, publishers, evaluators, school managers and others can explore the concepts, processes, systems and representations embodied in the *Framework,* and on the basis of this develop resources and try them out in their own context for their own purposes. The *Framework* is not something that can be imposed as a package of ready-made goods from the top-down, rather it is an attempt to put the best that is known about teaching, learning, assessment, the curriculum, and the curriculum renewal process into a network of interrelated ideas which can be explored, worked upon, tried out and further refined by all involved in the TOC initiative.

Since the concepts, processes, systems and representations in the *Framework* are common to all those engaged in the TOC initiative, it is hoped that coherence, consistency and continuity of ideas, actions and terminology can be brought to all aspects of it.

The *Framework* must be judged in terms of whether it responds to contextual requirements and has embodied the best that is known about curriculum renewal, and whether it is useful to all those who contribute to the curriculum renewal process. It will no doubt require to be refined, extended and reconstructed from time to time in the light of experience, new contextual requirements and new conceptual wisdom.

Pictures of the major concepts in the *Framework*, and some of the important relationships between them, are shown at Appendix 1 and Appendix 2. These provide an at-a-glance view of the integrative nature and complexity of what is involved in the curriculum renewal process and of the various parameters that need to be taken into consideration.

4.2 Managing the TOC initiative

There are a number of issues that will need to be addressed in the management of the TOC initiative. In essence, these concern:

- the need for professionalism and consistency in leadership, for a permanent TOC Steering Committee with representation from the major areas of contribution to the curriculum renewal process, and for a stable core of enthusiastic and able curriculum developers and teachers;

- the need for an overall curriculum renewal plan for the TOC initiative with maximum flexibility over time-scales;

- the establishment of an effective inclusive curriculum renewal process which involves teachers and other contributors, and embodies effective communication structures and strategies.

The need for professionalism and consistency in leadership, for a permanent Steering Committee, and for a stable core of enthusiastic and able curriculum developers and teachers

One of the important lessons to be learned from experiences in large-scale curriculum renewal exercises is that it is important to have professionalism and continuity in leadership. The TOC initiative is a complex one, and it inevitably takes some considerable time to become familiar with it. The loss of key management personnel, who may be moved to other areas of work, downgrades the importance of the initiative and causes damage to the sense of direction and to the continuity of purpose in the initiative as a whole.

It is crucial to the success of an initiative such as TOC to identify an overall full-time professional manager/facilitator who understands it fully and can devote full attention to developing the initiative. It is equally important to establish a permanent Steering Committee with proper representation from all the areas of contribution to the curriculum renewal process, to support and advise the manager/facilitator in the work that needs to be done. Thirdly, it is also essential to have a stable core of enthusiastic, committed and able professional curriculum developers and teachers to take the initiative forward. There is a need for professionals who understand the curriculum as a whole and curriculum areas, as well as subject specialists. Together they must establish the required curriculum renewal groups to develop, try-out, evaluate and review plans, programmes and resources.

The need for an overall curriculum renewal plan for the TOC initiative with maximum flexibility over time-scales

The Education Department should develop an **overall curriculum renewal plan for the TOC initiative**. The plan needs to focus on improving the capability of teachers and others, and improving the quality of the curriculum. It should also be concerned with improving the learning environment and public understanding of learning. In brief it should follow the parameters of the overall curriculum renewal plan for the TOC initiative set out on pages 68 and 69. It should embody the concepts, processes, systems and representations set out in the *Framework*.

Flexibility over time-scales in curriculum renewal initiatives is crucial (Clark 1987 p.132). Nothing in education either can or should be done in a hurry to meet artificial, externally imposed deadlines, however well-intentioned these may be. Time constraints injudiciously established in advance lead to the premature fixing of half-baked ideas, plans, schemes and resources, which do more to distort progress and raise resistance than to assist the initiative. The pace of the TOC initiative must be determined by how much time it takes in reality for all those involved in it to carry out what they are doing to the standard desired. This can never be accurately predicted in advance. Just as it takes variable amounts of time for students to learn and reach a particular band of performance, so it will take variable amounts of time for different curriculum renewal groups, schools and teachers to reach an appropriate standard of quality in their work. It will take different groups variable amounts of time to plan and create resources, try

them out, evaluate and then revise them. Hastening or short-circuiting any of these processes for the sake of an externally imposed deadline will lead to a substantial loss in quality.

All schools should be involved in the TOC initiative, since it represents a territory-wide means by which all schools can improve their curriculum and the quality of learning of their students, but it should be left to individual schools to determine their own best speed of progress in the renewal of their own curriculum on the basis of the *Framework* and the plans, programmes and resources to which it gives rise.

Effective piloting and evaluation of everything done is essential. A small number of schools with teachers who have been actively involved in the development of plans and resources might be involved in initial trialling, evaluation and review. Later, when this process has been carried out, a wider range of schools should then be involved in further trialling, evaluation and review. All schools need then to be given time to try things out, and to develop their own target-oriented curriculum sensitive to their own contextual requirements. Only when it has become clear that schools are ready for the full flowering of the initiative, should the high-stakes end-of-Key Stage summative assessments against bands of performance at Primary 6 be introduced. These assessments should then replace the current internal assessments and the academic aptitude tests used to scale them for the SSPA exercise.

The establishment of an inclusive curriculum renewal process in the TOC initiative

It is crucial to develop **an effective inclusive curriculum renewal process involving all contributors to the TOC initiative**, such as teachers, schools, the Hong Kong Examinations Authority, publishers, teacher educators, curriculum developers, researchers, parents, employers and others. Teachers and whole schools should be involved in developing, trialling, evaluating and reviewing all that is produced as the TOC initiative develops.

The Education Department should contract out much of the professional development and curriculum development work, tapping the expertise of tertiary institutions, teachers and others. There is scope for this, for example, in:

- the development, trialling and calibration to bands of performance of appropriate assessment tasks for the assessment bank;
- the further elaboration and trialling of the initial bands of performance;
- the development and implementation of an appropriate in-service professional development plan for TOC coordinators and for teachers and schools;
- the development of video material for use on teacher education programmes;
- research and development of better resource and management strategies for individualised learning;
- research into teaching students to think;
- research and development of useful forms of formative assessment;
- the development of a database and of a bank of graded learning resources.

It is necessary to identify in every school a TOC coordinator responsible for whole school target-oriented curriculum development and whole school professional development. The TOC coordinator and staff in general must be given the time and resources necessary to engage in work for the TOC initiative.

It will be important to create networks of schools in each district in which TOC coordinators and other teachers can work together to develop their own target-oriented curriculum suited to their own context. It would seem sensible for the Education Department to provide district coordinators from among teacher educators and curriculum developers, whose services are hired part-time to support schools in their renewal work.

Effective communication among all contributors is essential in the process of curriculum renewal. It is incumbent on the Education Department to establish an open style of communication and to create structures for inclusion which will enable schools, teachers and other contributors to develop a sense of ownership of TOC.

5 Conclusion

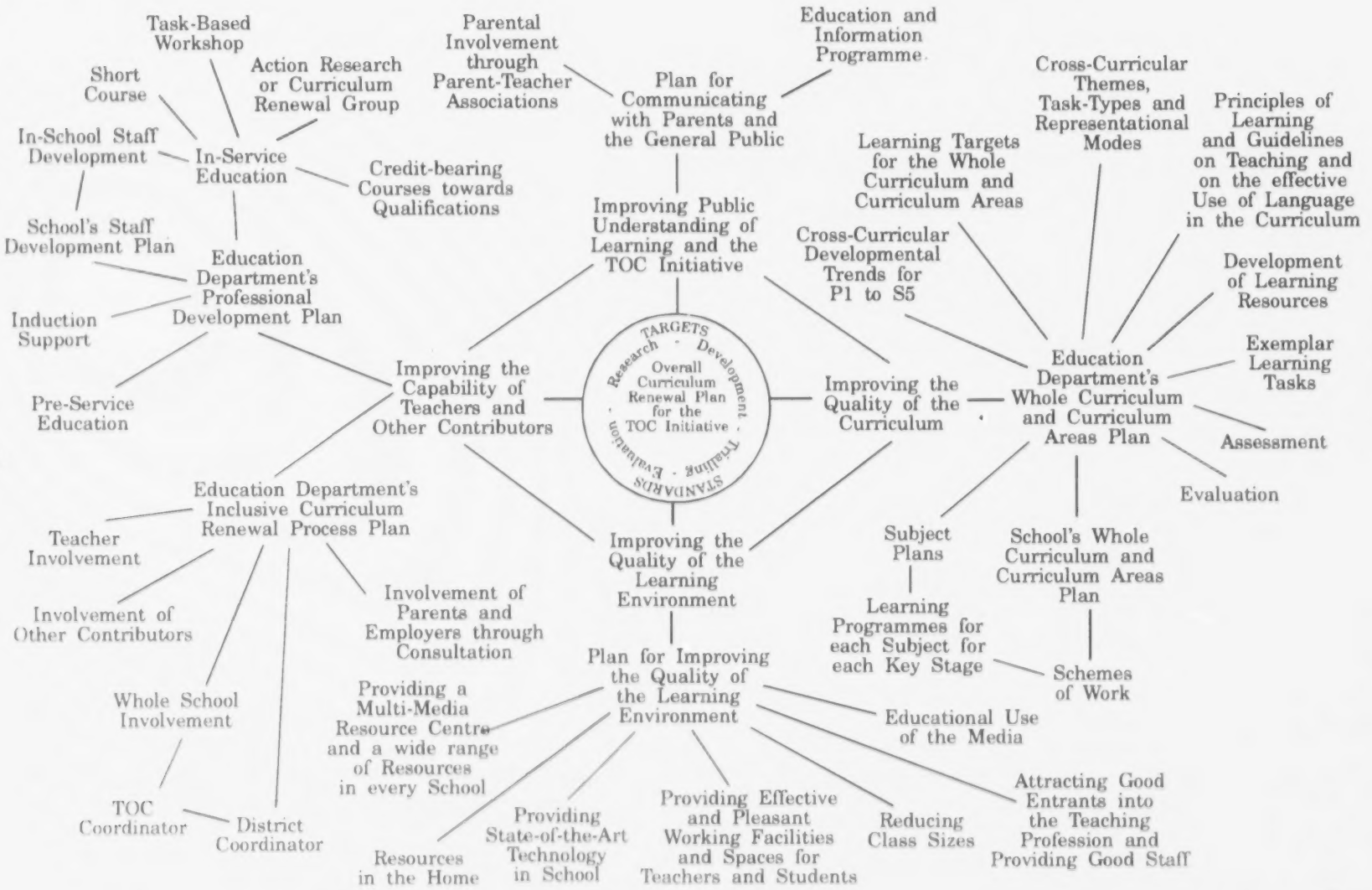
The TOC initiative provides the Hong Kong education system with a unique and important opportunity to respond to the contextual requirements of the times, to address a number of the major problems in the present education system, and to ensure that current conceptions of learning, progression and knowledge are built into the curriculum, so that each individual can develop the capabilities required to maintain and enhance the quality of life in our community. It also provides a unique opportunity to develop a curriculum renewal process in line with current conceptions of how this can best be done.

The TOC initiative should be extended to all subjects in the curriculum and to all sectors of education in Hong Kong as quickly as possible, in order to achieve coherence within the curriculum as a whole and in order to avoid dislocation across phases of education. It should provide the means for developing a seamless pathway of progress from Kindergarten, through primary, secondary, tertiary and adult education, to which all in Hong Kong have equal access.

The TOC initiative will need to be carefully monitored and evaluated. It will be judged over time in terms of the extent to which:

- it has engendered an understanding of the need for educational change and a climate of willingness to engage in this;
- it has involved teachers and other contributors in the renewal process and brought about a sense of ownership among them;
- it has inspired inquiry into the curriculum, curriculum renewal and professional development processes, and better understanding of learning and progression among all contributors to the education system;
- it has led to an improvement in the capability of teachers and others who contribute to the curriculum renewal process;
- it has led to an improvement in the quality of the learning environment;
- it has led to better public understanding of learning;
- it has given rise to an ever-improving planned curriculum and resources, leading to better curriculum reality in the classroom;
- it has brought about a better whole-school approach to the curriculum;
- it has led to more classroom research and a wider range of classroom resourcing, teaching, learning and assessment strategies, focused on individual learning and the purposeful, contextualised construction, use and reconstruction of knowledge;
- **it has brought about improvement in the quality of learning of all students.**

Appendix 1: Planning for the Improvement of the Quality of Learning through the TOC Initiative


Overall Curriculum Renewal Plan for the TOC Initiative
TARGETS
Research · Development
Training · Evaluation
STANDARDS
Improving the Capability of Teachers and Other Contributors
Improving the Quality of the Curriculum
Improving the Quality of the Learning Environment
Improving Public Understanding of Learning and the TOC Initiative
Education Department's Professional Development Plan
In-Service Education
In-School Staff Development
School's Staff Development Plan
Induction Support
Pre-Service Education
Task-Based Workshop
Short Course
Action Research or Curriculum Renewal Group
Credit-bearing Courses towards Qualifications
Education Department's Inclusive Curriculum Renewal Process Plan
Teacher Involvement
Involvement of Other Contributors
Whole School Involvement
TOC Coordinator
District Coordinator
Involvement of Parents and Employers through Consultation
Plan for Communicating with Parents and the General Public
Parental Involvement through Parent-Teacher Associations
Education and Information Programme
Education Department's Whole Curriculum and Curriculum Areas Plan
Learning Targets for the Whole Curriculum and Curriculum Areas
Cross-Curricular Developmental Trends for P1 to S5
Cross-Curricular Themes, Task-Types and Representational Modes
Principles of Learning and Guidelines on Teaching and on the effective Use of Language in the Curriculum
Development of Learning Resources
Exemplar Learning Tasks
Assessment
Evaluation
School's Whole Curriculum and Curriculum Areas Plan
Schemes of Work
Subject Plans
Learning Programmes for each Subject for each Key Stage
Plan for Improving the Quality of the Learning Environment
Educational Use of the Media
Attracting Good Entrants into the Teaching Profession and Providing Good Staff
Reducing Class Sizes
Providing Effective and Pleasant Working Facilities and Spaces for Teachers and Students
Providing State-of-the-Art Technology in School
Resources in the Home
Providing a Multi-Media Resource Centre and a wide range of Resources in every School

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Appendix 2: Major Concepts Involved in Improving the Quality of the Curriculum

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